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ABSTRACT

The state of the art of career education for handicapped persons was reviewed beginning with the events and developments which have aided in the growth of career education for the handicapped since 1971. Specific career education needs of the handicapped were identified, and the concept of career education was clarified. The study examined relevant research on the roles of occupation, citizen, family, and avocation associated with persons who are deaf, hard-of-hearing, blind, partially sighted, crippled, health impaired, mentally retarded, emotionally disturbed, learning disabled, or multi-handicapped. Research conducted to evaluate the effectiveness of various curricular approaches in this field was also studied. Finally, research in the areas of teaching counseling methods and career assessment, exploration, and preparation for the handicapped was reviewed. The research indicated that only now are school systems beginning to retool and initiate a comprehensive array of services: infusion of total school resources, community participation, and family involvement. Based on past research and reviews of research in progress, ten generalizations were drawn. Three are as follow: (1) the majority of handicapped students who leave school are in danger of becoming either unemployed or underemployed in later life; (2) currently there is considerable curricula variability in scope and sequence for career education program implementation, but more definitive guidelines and procedures are necessary upon which to build curricula; and (3) parents appear to have a significant influence on the handicapped person's career development. (BM)

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THE CAREER AND VOCATIONAL DEVELOPMENT OF HANDICAPPED LEARNERS

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FOREWORD

The Educational Resources Information Center on Adult, Career, and Vocational Education (ERIC/CE) is one of the sixteen clearinghouses in a nationwide information system that is funded by the National Institute of Education. One of the functions of the Clearinghouse is to interpret the literature that is entered in the ERIC data base. This paper should be of particular interest to teacher educators, counselor educators, researchers, and curriculum developers working in the field of education for the handicapped.

The profession is indebted to Donn Brolin and Oliver Kolstoe for their scholarship in the preparation of this paper. Recognition also is due Bruno D'Alonzo, Arizona State University; Henry Colella, Board of Cooperative Educational Services of Nassau County, New York; and Garry Bice, The National Center for Research in Vocational Education, for their critical review of the manuscript prior to its final revision and publication. Robert D. Bhaerman, Assistant Director for Career Education at the ERIC Clearinghouse on Adult, Career, and Vocational Education, supervised the publication's development. Ruth Gordon conducted the computer search and Anne Gilmore typed the final draft.

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ABSTRACT

The state of the art of career education for handicapped persons was reviewed beginning with the events and developments which have aided in the growth of career education for the handicapped since 1971. Specific career education needs of the handicapped were identified, and the concept of career education was clarified. The study examined relevant research on the roles of occupation, citizen, family, and avocation associated with persons who are deaf, hard-of-hearing, blind, partially sighted, crippled, health impaired, mentally retarded, emotionally disturbed, learning disabled, or multi-handicapped. Research conducted to evaluate the effectiveness of various curricular approaches in this field was also studied. Finally, research in the areas of teaching counseling methods and career assessment, exploration, and preparation for the handicapped was reviewed. The research indicated that only now are school systems beginning to retool and initiate a comprehensive array of services: infusion of total school resources, community participation, and family involvement. Based on past research and reviews of research in progress, ten generalizations were drawn. Three are as follows: (1) the majority of handicapped students who leave school are in danger of becoming either unemployed or underemployed in later life; (2) currently there is considerable curricula variability in scope and sequence for career education program implementation, but more definitive guidelines and procedures are necessary upon which to build curricula; and (3) parents appear to have a significant influence on the handicapped person's career development. (BM)

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INTRODUCTION

Career education is becoming an exciting and prominent feature of our educational system. As any other new movement, career education is experiencing resistance from many sources, and for many reasons. If career education is to continue to move forward, it must demonstrate its efficacy. This can only be done by carefully planned applied research.

This paper attempts to ascertain the state of the art in career education for persons with handicaps. In attempting to establish the parameters for the paper, the authors were confronted with taking a position on what constitutes career education. Is it really a new concept since being formally introduced on the national scene? Or, at least in the case of persons with handicaps, have we been engaged in it over the years? Is it really "old wine in new bottles"?

As we began this review, it became clear that a wide diversity of opinions was evident, from very narrow perspectives to extremely comprehensive views. Most reference to career education appeared to be in the occupational sense, particularly in regard to job training and placement. Few studies reflected the totality of experiences that constitutes a comprehensive approach to serving the handicapped individual.

With a limited amount of research available, the authors decided to present a wide variety of work that has been done, including research prior to 1971. Essentially we came up with a research potpourri, not totally generalizable.

The studies reviewed were obtained from several sources: a computer search from the ERIC Clearinghouse on Adult, Career, and Vocational Education; Dissertation Abstracts; recent relevant journals; and

the authors' personal libraries. In addition, we secured relevant lists of projects of recently funded federal projects of The Bureau of Education for the Handicapped (BEH) and The Office of Career Education (OCE). Unfortunately, we were not so fortunate in securing information from wider governmental sources.

The nature of the research varied from descriptive studies to somewhat experimental ones. To the extent possible, we attempted to present the nature of the study, the problem or need, the sample, methodology, instrumentation, statistical procedures, and results. While many studies lacked research sophistication, there is some movement toward more comprehensive experimentation. There are probably other research efforts that have been conducted which have been overlooked or have not been reported. Also, in the past few years there have been a number of federally sponsored conferences to identify future research needs in this field. The results of these will hopefully provide the stimulus for increased research activity. The studies in this paper essentially represent where the field is now, where it appears to be headed, and what it needs to do.

GROWTH AND DEVELOPMENT OF CAREER EDUCATION FOR HANDICAPPED PERSONS

As almost everyone is aware, the career education concept was introduced by Dr. Sidney P. Marland, former U.S. Commissioner of Education, in a speech delivered in Texas, in January 1971. It could not have been more timely, for education had just gone through a period of intense and sometimes bitter criticism from both within and outside of the profession. Among the more general criticisms were such charges as these:

1. Educational fare was not only insipid but was generally irrelevant to the survival requirements of society.

2. Education had not kept pace with a rapidly changing, computer dominated world.

3. Newer communications technologies made the need for written and printed educational materials virtually obsolete.

4. Economically disadvantaged persons were not being effectively prepared for participation in the more desirable occupations.

5. Many jobs, historically the exclusive domain of men, were continuing to be represented in educational institutions as neither suitable nor available to women despite clear, contrary evidence.

6. A great many, perhaps the large majority, of the young people who left the secondary schools did not have the proper attitudes or skills necessary to make a successful transition to work (Holt 1970)..

Although the criticisms reflected concerns for the preparation of all young people, professionals in special education soon expressed the feeling that handicapped persons were even more severely shortchanged than their non-handicapped peers (Johnson 1962; Dunn 1968).

Congress tried to improve educational opportunities for the handicapped with the passage of the Vocational Education Act of 1963 and the subsequent amendments in 1968. Specifically, the act authorized the education of handicapped youngsters in regular vocational education programs and set aside ten percent of the total monies allocated to pay for needed materials, changes, and personnel.

Despite this effort, the program fell far short of being an instant success. Thus, when Dr. Marland announced priority for career education, special educators listened carefully. Marland described career education in the broadest sense; that is, not merely job training, but going beyond occupational skills and connoting a stream of continued growth and progress (Marland 1971).

Programs for handicapped youngsters at the secondary school level had long espoused the twin goals of preparing students for competitive work and independent living. Career education was not viewed as synonymous with vocational education or incompatible with programs in special education. It was seen instead as opening doors to even more options than had been previously available.

Special educators declared their support of career education by cosponsoring with the American Vocational Association (AVA) a National Topical Conference on Career Education for the Handicapped in New Orleans in February 1973. This event officially launched career education at a national level for handicapped individuals. Since then, several other major developments have aided the growth of career education for handicapped persons:

1. A special conference on Research Needs Related to Career Education for the Handicapped, sponsored by BEH in 1975.

2. A new section created in 1975 in the AVA to focus on the career/vocational needs of handicapped and disadvantaged students: The National Association of Vocational Education Special Needs Personnel.

3. A new division, The Division on Career Development, organized in 1976 the Council for Exceptional Children to promote the career education concept in CEC and related organizations.

In addition, the process continues: A National Topical Conference on Career Education for Exceptional Individuals and several training institutes will be conducted in St. Louis in February 1979.

Many other local, state and national workshops have been conducted to train personnel to work more effectively with handicapped learners. We have witnessed a proliferation of instructional materials developed at local, state and federal levels as well as in the commercial world. Career education, thus, is becoming a reality for many handicapped citizens.

THE NEED FOR CAREER EDUCATION

Handicapped individuals need career education. The educational system has been criticized for failing to meet their needs. Bureau of Education for the Handicapped Director Edwin Martin (1972) reported that only twenty-one percent of the handicapped children leaving school during 1972-1976 would be fully employed or go on to college; forty percent would be underemployed; twenty-six percent could be unemployed; ten percent would require at least a partially sheltered setting and family; and three percent would be almost totally dependent individuals.

Viscardi (1976) also reported that only four million of the eleven million handicapped citizens of employable age actually were working and many were underemployed. Figures released by the President's Committee on Employment of the Handicapped (1976) revealed a significantly greater proportion of handicapped individuals not working compared to nonhandicapped.

The Research Branch of the BEH in 1975 held four conferences in order to gain expert opinions about the most critical research

needs of the following five-year period. One, at the Educational Testing Service in Princeton, focused on career education for the handicapped. Eighty-six participants--special and vocational education administrators and teachers, rehabilitation counselors, researchers and others involved in the education of the handicapped--met to identify research needs in four areas: preparation of the handicapped for careers, exploration of careers for the handicapped, maintenance and mobility on the job, and leisure and retirement for the handicapped. Figure 1 illustrates what the participants ultimately considered to be three essential research areas: institutions of human society, life and career elements, and career education objectives. The following high priority issues were generated:

1. Attitudes that impede the handicapped person's opportunities for career development and employment.
   - How do families relate to the handicapped?
   - How do employers relate?
   - How do labor unions relate?
   - How do peers relate?
   - How do educational personnel relate?
   - How do the handicapped feel about themselves?
   - How do community attitudes affect the handicapped?

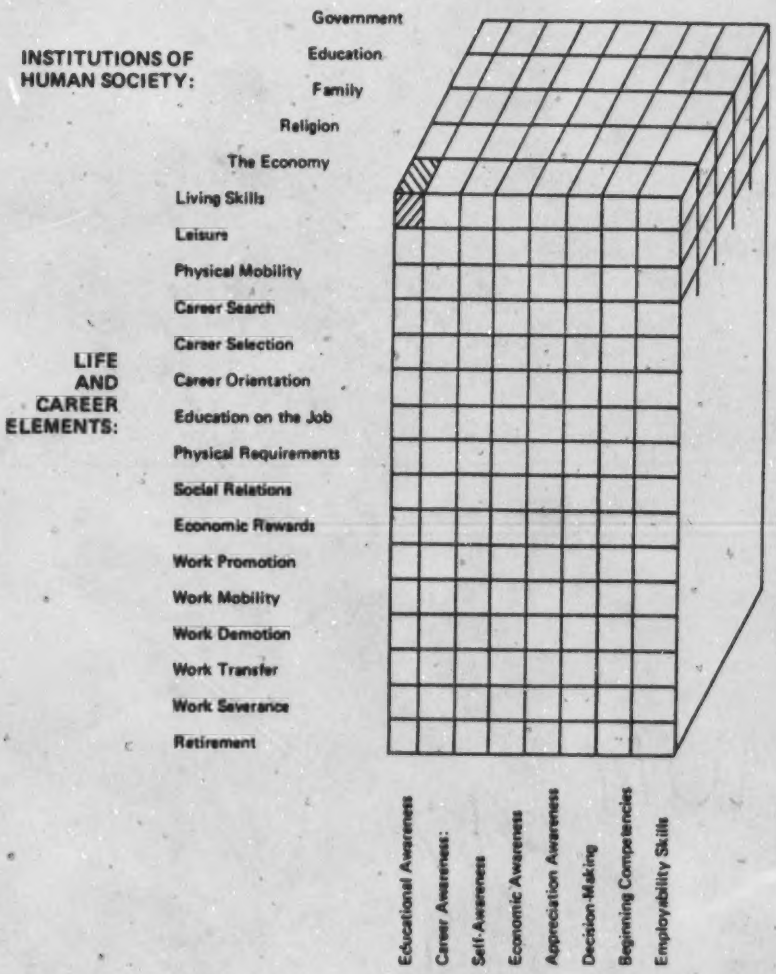
2. Critical incidents or factors that lead to maintenance, improvement, or loss of jobs.

3. Decision making and problem solving and the development of coping skills.
   - To what extent do handicapped students participate in the process of making decisions about their own careers?
   - What differential applications of coping strategies are needed?
   - How can decision making and coping skills be developed?
   - How do role models influence the career decision making processes of the handicapped?

4. Development of better articulation among all agents involved in delivery services for the handicapped.
   - How do special education personnel perceive the adequacies of vocational rehabilitative and counseling services and vice versa?
   - How do educators, counselors, and parents interact with each other and with the handicapped?
   - How can articulation among individuals and groups be improved?

5. Identify developmental sequences of concepts, facts, and behaviors that are fundamental to competencies in career implementation to develop models for career education.

Figure 1. Essential Research Areas



Source: Proceedings of the Conference on Research Needs Related to Career Education for the Handicapped. Bureau of Education for the Handicapped. 1975, p. 59.

- How do handicapping conditions limit career potentials?
- Are there differences in perceptual, cognitive, and learning styles among children from diverse cultural, ethnic, or racial groups?
- How can teachers be motivated to implement strategies for career education?
- How can parents be trained to work with the handicapped in ways that are consistent with school instruction?
- Does post-placement personnel counseling increase job retention and job satisfaction?
- What are the unique needs for the development of personnel for career education of the handicapped?
- Can job-seeking, readiness, maintenance, and mobility skills be taught in such a way that they remain in the student's repertoire?
- Are job-related skills retained better when taught in job-related ways or as academic studies?
- How effective are current teaching technologies (e.g., television and audiovisual aids) in aiding handicapped?
- How can the handicapped be educated to understand their civil liberties?
- How can the handicapped be taught interpersonal communication skills for work and leisure activities?
- Can relevant aspects of the Minnesota Theory of Work Adjustment be used to develop viable curricula for career education of the handicapped?
- What teacher competencies are needed to integrate leisure-education activities in special education classrooms?
- What counseling techniques are most effective for career and avocational guidance? What aspects of career exploration can most effectively be facilitated by individual counseling?
- Which personnel are effective in delivering counseling services?
- What do the handicapped need to learn and when in the student's development should these needs be addressed?
- How does the development and utilization of leisure time complement the career development process?
- What delivery and support services are needed to encourage and motivate handicapped women and girls to pursue their occupational potential?
- How does the formal organizational structure of the system relate to teacher effectiveness as measured by morale, expectations, and communication patterns?
- Is mainstreaming the best administrative arrangement to provide career education to the handicapped?

- What existing supportive resources are available for training, retraining, and employment of the handicapped among employers and service groups at national, state, and local levels?
- Can schools be influenced to adopt the concept of flexible entry-reentry for handicapped people?

The participants identified other critical research needs but did not place them in the top priority area. These were in the categories of employability, physical mobility and special demonstration/dissemination. Career education was perceived as being a development process; that is, beginning with early identification of handicapping conditions and continuing through programs of preparation and intervention into retirement. They considered living skills and leisure time activities as important adjuncts in preparing the handicapped for the world of work. The Princeton conference established the fact that a great many research endeavors were needed.

Another attempt to identify major areas of research concern was conducted by the American Association on Mental Deficiency (AAMD) in 1976. The report of the Study Committee on Secondary Career Vocational Education was prepared by Kokaska (1977). Fourteen professionals responded to the following tasks: identifying the major unresolved issues in the area of career/vocational education at the secondary level for the mentally retarded, suggesting educational or political strategies by which such issues might be resolved, indicating the role of the education community in addressing these issues, and identifying the role the AAMD might play. Some major recommendations were:

1. The mentally retarded should acquire those skills which are included in the domains of personal-social, daily living and occupational abilities.

2. Professionals must establish a continual flow of information about the individual's adult experiences (follow-up studies) and characteristics of the local labor market (labor force reports) to assess relevancy of the career/vocational program.

3. Career/vocational preparation should begin at the earliest school level possible.

4. School, family and community personnel have specific responsibilities in the student's career/vocational development and must cooperate to build comprehensive programs.

5. Educators should actively include parents in decisions and procedures and should include the following:

   - An active information program for parents (e.g., suggested reading, reprinted articles, and newsletters).
   - "Career days" featuring former students or community employers.
   - "Career/vocational workshops" on career development techniques and information.
   - Career/vocational conferences or presentations at conferences with parents.

6. Offer a multi-disciplinary approach by considering:

   - Developing a career/vocational plan that elicits input from agencies, parents, business/industry, and others.
   - Organizing cross-discipline in-service presentations committees and task forces related to career development.
   - Developing individualized training plans.
   - Requiring interdisciplinary planning and implementation at the state level through legislation and regulations.

7. Increase employment opportunities by improving community job surveys, personal contact with employers, media utilization, and placement materials and devices.

8. Update vocational skills of retarded adults by providing evening adult basic education programs, short-term training programs with agencies and business, and reentry programs in vocational schools.

9. Greater emphasis in preservice and inservice training of all personnal regarding assessment of students' personal-social, daily living and vocational skills, interdisciplinary planning and coordination, evaluation strategies, counseling procedures, employment and training opportunities, and follow-up procedures.

10. Greater BEH emphasis on stimulating model programs, expanding in-service training participants, increased dissemination of successful training and research programs and coordinating efforts with other federal agencies.

The Study Committee further recommended the following actions for various agencies:

1. Promote career/vocational education for all students.

2. Promote preservice and inservice programs to prepare all personnel to provide appropriate career/vocational education.

3. Develop innovative practices which include interdisciplinary personnel and exchange of ideas, materials, and sources.

4. Provide the means by which skilled community personnel can be involved in the preparation of students and professional personnel.

5. Develop materials which parents can use.

6. Conduct joint needs assessment and planning with local, state and federal agencies.

7. Project plans for the inclusion of the mentally retarded in future curriculum and services in career/vocational education.

8. Improve curriculum and guidance sources regarding career/vocational education themes, experiences, and materials.

9. Utilize all sources of input including former students, community specialists, and agency personnel.

10. Identify sources of information to be used in the preparation of the mentally retarded and their teachers.

11. Develop research to establish a data base.

No doubt the recommendations also pertain to other handicapped groups.

In a recently completed study by Project RETOOL (Heller and Schilit in press), six consultants assisted in developing and conducting a survey instrument in five areas: demographic data, curriculum and instruction, scope and breadth of career education, student information related to career education, and future needs. The last section assessed how respondents viewed eleven trends. The questionnaire was sent to a total of 1,200 individuals. Eleven future needs (in priority order) were identified:

1. Identify special skills for and train personnel in working with handicapped persons in career and vocational education.

2. Increase the variety and number of opportunities for handicapped students to explore the world of work.

3. Provide comprehensive placement, career counseling, and follow-up services.

4. Increase collaboration with business, industry, labor, government and other community organizations.

5. Improve curriculum materials used by special educators.

6. Develop and expand both secondary and post-secondary programs for the handicapped with supervised work experience as a major component.

7. Develop techniques for infusing career education into K-life programs.

8. Develop alternative methods for helping handicapped persons make the transition from school to work more effectively.

9. Evaluate career education programs for handicapped persons.

10. Require every teacher to complete a specified program (in-service, preservice) in career education.

11. Improve the effectiveness of the teaching-learning process by systematically researching and applying modern technology in the classroom.

The study found a high degree of consensus between the regional and the national composite ranking except for the Northwest. However, only items 1, 8, 10 and 11 above were somewhat consistent across regions. There apparently are regional differences relative to future directions. Nevertheless, the study shed light on several major needs, particularly the one consistently ranked number one.

One of the six studies for Project RETOOL was conducted by Reichard (1978) who surveyed administrators, teachers, vocational educators and rehabilitation personnel in ten southeastern states as part of the larger project sponsored by the Teacher Education Division of the Council for Exceptional Children. These key personnel differed very little in their understanding and implementation of programs. They were nearly evenly represented by sex, reported a median teaching experience of from six to ten years, and typically possessed a master's degree. The fact that ninety-five percent spent less than five years in career education illustrates the newness of the field. Nevertheless, they appeared to represent a respectable level of training and experience. While approximately seventy-five percent of the schools indicated that career education was offered for the handicapped, only sixty percent had a policy statement and specific objectives. Approximately the same number indicated they had a

career education curriculum, but nearly seventy percent stated they did not schedule field trips to business and industry and sixty percent had no advisory committee. While nearly sixty percent reported they had cooperative programs through local businesses, fifty-five percent reported no job placement help. The most revealing data showed that only twenty-five percent of the handicapped students at the junior high school level or below and only forty-two percent at the high school level participate in career education.

The study by Reichard revealed that most respondents appeared to view career education as synonymous with vocational education. Further, the majority of handicapped youngsters were being excluded from any substantial career/vocational education service. The majority of the programs were not using any of the currently available career guidance systems. While nineteen percent used the Guidance Information System (GIS), only eleven percent used the computerized Vocational Information System (CVIS) and less than five percent used the Oregon Information Access System (OIAS), the Education and Career Exploration System (ECES), the System for Interactive Guidance and Information (SIGI) or Project Discover. While most programs tried to help students develop positive attitudes toward themselves, school, and work, over half reported they provided opportunities for students to test their interests and aptitudes in work situations "seldom" or "not at all"; forty-five percent reported the same low level of placement effort; over fifty percent reported no effort at gathering follow-up data. Reichard summarized that:

1. Career education is too frequently viewed synonymously with vocational education or rehabilitation.

2. Of those existing efforts, there appear to be no agreed upon competencies, philosophies, guidelines, or functional intra-agency communications.

3. Knowledge of--or the provision and/or development of--career education materials is nearly nonexistent.

4. Definitions of career education appear to vary significantly among vocational programs.

5. Philosophical differences between administration and regular/special class teachers are evident.

6. Noneducational personnel apparently are not being included in the process.

7. Career education, as a major curricular thrust, is not being included in most programs.

8. Preservice and inservice programs are scarce.

9. For those programs in existence, accountability--that is, competencies and programmatic evaluations and publications or results--is taking a low profile.

10. Job placement and follow-up appear to be associated mainly with special education and not regular class programs.

11. Agreement with the career education concept appears to be widely accepted but implementation is varied and minimal.

There is every reason to believe that the situation in the states surveyed is not unlike other parts of the country, if reports from other components of the project are valid. It, therefore, becomes doubly important to assess the condition of the various components of career education preparation of the handicapped.

Results of all five investigative areas should be available from the six regions in the near future.

THE CONCEPT OF CAREER EDUCATION

When Dr. Marland introduced the concept, he used it in a broad context--that is, not only preparation to earn a living but also to learn about living itself. Hoyt (1975) defined the concept as "the totality of experience through which one learns about and prepares to engage in work as part of her or his way of living" (p. 4). He defined *work* (paid or unpaid) as "conscious effort (other than that involved in activities whose primary purpose is either coping or relaxation) aimed at producing benefits for oneself and/or for oneself and others" (p. 3). In this context, career education was conceptualized as considerably less than all of life or one's reason for living. In a later elaboration, Hoyt (1977) defined career education as "an effort at refocusing American education and the actions of the broader community in ways that will help individuals acquire and utilize the knowledge, skills, and attitudes necessary for each to make *work* a meaningful, productive, and satisfying part of his or her way of living" (p. 5). He clarified his use of the term *work* by indicating that it "is individualistically decided by the person, not by the nature of the task. What is *work* to one person may well be drudgery to another. The human need to work will,

hopefully, be met by others in productive use of leisure-time, in volunteerism, or in duties performed as a fulltime homemaker who is not employed for wages" (p. 7). Hoyt, thus, clarified his position on what constitutes productive work, something many conceptualizers have failed to do. Various interpretations have led to confusion about the exact nature of career education. Some people still think of it as vocational education and have leveled the charge of its being an old concept dressed with new verbiage. Some have related career education to students placed in the lower track of the school programs, while others included the elements for students in all of the educational tracks. Some have felt that career education is not respectable enough to be offered to college-bound students. Still others excluded the handicapped from the career education offerings.

Many conceptualizers of career education opt for a definition that emphasizes the roles a person is likely to play in one's lifetime. These encompass those of student, paid worker, recreator, family member, citizen, and pensioner. Career education is what people do to learn how to engage in these roles. This is exemplified by the definition approved by the Board of Governors of the Council for Exceptional Children in December 1977 (*Division on Career Development Newsletter* 1978):

> Career education is a totality of experiences through which one learns to live a meaningful satisfying work life. Within the career education framework, work is conceptualized as a conscious effort aimed at producing benefits for oneself and/or others. Career education provides the opportunity for children to learn, in the least restrictive environment possible, the academic, daily living, personal-social and occupational knowledges and specific vocational skills necessary for attaining their highest levels of economic, personal and social fulfillment. The individual can obtain this fulfillment through work (both paid and unpaid) and in a variety of other societal roles and personal life styles including his/her pursuits as a student, citizen, volunteer, family member and participant in meaningful leisure time activities.

Career education is, therefore, seen as supportive of other aspects of the education process and as relevant for college-bound students as well as for the disadvantaged, minority, or handicapped. It spans a person's lifetime, but its emphasis varies with each person's developmental stage and role preoccupation. Its components--

awareness, exploration, preparation, and placement/follow-up/continuing education--are appropriate for each of the roles but are not tied specifically to age or grade levels. The primary goal is to prepare one to live and work successfully. It is concerned with both development and performance.

Career education applies to handicapped persons in the same manner as it does to those who do not have handicaps. However, the special difficulties which the handicapped may possess usually require extra considerations and modifications. For the majority of handicapped individuals, paid employment will be a major part of their career. For others, paid employment may be a small or nonexistent part. Their career may consist primarily of avocational, family, and civic pursuits (Brolin and D'Alonzo 1978).

This paper will examine relevant research on the roles of occupation, citizens, family, and avocation associated with persons who are deaf or hard-of-hearing, blind or partially sighted, crippled or health impaired, mentally retarded, emotionally disturbed, learning disabled, or multi-handicapped. Although the authors consider that unusual abilities or giftedness can be a problem, it was decided to focus on the more traditional handicapping conditions. Such states as Florida, North Carolina, and Virginia are leaders in career education for the gifted. (See Hoyt and Hebeler, *Career Education for the Gifted and Talented,* Olympus, 1974.) Since there are so many different definitions used by professionals in the field, this paper will try to make clear what interpretations the investigators used so that the findings can be understood accurately.

LIFE ROLES

Many studies have examined how well people with handicaps have been able to play effective roles as adults. Many have taken a segment of a given time and described what people with specific types of problems were doing. These cross-sectional looks provide only information of a comparison with non-handicapped persons at a given stage of life. These comparisons give a "snapshot" glimpse but no real sense of growth or continuity. Exceptions were the studies of Baller, Charles, and Miller (1967), Kennedy (1960), and Richardson (1978). These longitudinal studies provide continuity and, therefore, are a valuable contribution for understanding. Four significant life roles are discussed below.

OCCUPATIONAL ROLES

Persons with *mental retardation* have been the subject of considerable study vis-á-vis occupational adjustment. In the 1930's, Baller and Charles identified youngsters who had been in classes for the mentally handicapped. Some twenty-nine years later, with the collaboration of Miller, they located sixty-one percent of the original subjects. An expected discovery was the modest but general well-being of these people in all their adult roles; the most unexpected discovery was the level of vocational skill demonstrated by some. While the typical subject was employed at a modest level, many were holding semiskilled, skilled, and proprietor positions.

Kennedy (1966) studied subjects in 1948 and again twelve years later. Her groups were 256 retarded and 129 nonretarded individuals matched on age, sex, nationality, religion, and father's occupations. The majority of individuals emerged as "hewers of wood and drawers of water," living quiet lives on the fringes of society. However, some were holding responsible semiskilled and skilled jobs in defiance of earlier expectations.

Richardson (1978) followed up eighty-eight retarded persons when they were twenty-two years old. They were compared with eighty-eight nonretarded persons matched (when both were eight to ten years old) on age, sex, occupation of the head of the household, and type of housing. On every comparison, the retarded were less advanced in terms of occupational functioning. However, a substantial number of retarded persons were living comfortably well.

Professionals slowly have begun to recognize that their expectations of the potentials of mentally retarded individuals have been seriously underestimated. Accompanying this was the uneasy suspicion that work-study programs might actually be undertraining the students and that entry level jobs were unjustifiably low. Skodak (1970) compared the post high school adjustment of graduates of two types of special education programs, a "segregated" program (self-contained special education class) and an "integrated program" (placement in regular classes with nonhandicapped). Using a pool of graduates of special classes for the mentally handicapped, 196 were interviewed. Interviews were conducted in 1966 of graduates in 1964 and 1965. Several students graduating between 1952-1963 also were interviewed. Both groups had a high percentage of employment (ninety-three percent and 100 percent), but graduates of integrated programs more frequently held full-time jobs, achieved a higher occupational level, and earned more money.

Brolin, Durand, Kromer, and Muller (1975) attempted to determine the post-school adjustment of former students. Eighty special education students classified as mentally retarded were randomly selected from a list of 400 attending various Minneapolis high schools between 1966-1972. Nine students were eventually excluded because of insufficient information. The rest were divided into two groups: those who had received a six-month work program (Work Study Group) and those who had not (Academic Group). Work-study students were those who took at least one vocational course and were placed on at least one job training station for skills development. The findings for both groups combined were that twenty-one percent had an "average or better" vocational adjustment, thirty-five percent had a "fair" adjustment, and forty-four percent had a "poor" adjustment after they had left school. At the time of the follow-up, forty-four percent of the total were unemployed. Only twenty-eight percent had been employed more than seventy percent of the time since high school. A wide diversity of jobs was obtained, but over half were in service occupations. Those who had work-study experience during high school attained a significantly (.05) better overall degree of vocational adjustment than those who had the academic program.

Becker (1976) surveyed forty work-study coordinators to assess the types of jobs to which mentally retarded youth were assigned for on-the-job training. Questionnaire replies included data from thirty-five districts in twelve states and the District of Columbia for 1,438 retarded youth enrolled in work-study programs between 1972 and 1974. Students were assigned to 185 different jobs distributed among fourteen major industries and additional miscellaneous classifications. Hotel, restaurant and building maintenance services were the most prevalent. Janitorial training constituted the largest single job placement. The researcher concluded that there is a wide range of training opportunities for the mentally retarded at the unskilled and semiskilled levels.

In a related study of the trainable level mentally retarded, Becker (1978) used a survey technique to assess the type of training to which these youth were assigned and to identify work-related problems of job failure and placement. Work-study and job placement personnel from thirty-six districts in twelve states completed a three-part questionnaire. The major problem area was the need for substantially more involvement by local and federal agencies in meeting training needs of these individuals. Additional physical facilities also were identified as a major need. Social and emotional immaturity to cope with work demands--e.g., job frustration, interpersonal re-

lationships with co-workers and supervisors--seriously jeopardized employment success. Vocational training and job placements were: noncompetitive sheltered placements or subcontract activity (sheltered placement), sixty percent; competitive training or placement, forty percent. A large proportion of this group was employed in service occupations, e.g., food service, janitorial, or building maintenance. The researcher concluded that job training opportunities are expanding for the trainable mentally retarded.

The adult attainment of children with *learning disabilities* due to cerebral dysfunction was studied by Rogan and Hartman (1976). The sample consisted of ninety-one adults, twenty-one to thirty-nine years old, predominantly white, middle and upper class males. The subjects had received remedial education in a private school for an average of three years between the ages of six and thirteen. Mean WISC Verbal IQ was average; Performance and Full Scale Means were dull-normal. The methodologies used were questionnaires, interviews, and psychological testing. Seventy-five subjects were interviewed; seventy-two were tested. Sixteen supplied only the questionnaire. Approximately sixty percent were employed; thirteen percent were still in college. Four percent were unemployed but were either looking for work after graduation or changing jobs. The employment status of eighteen percent was less positive. They were considered marginally employable, in employment subsidized by parents, in sheltered workshops or life-care situations. Eighty percent with less adequate employability had Full Scale WAIS or WISC IQs below the mid-eighties; an equal number had known emotional problems; fifty percent had additional physical handicaps. Major occupations of the employed group were clerical (thirty-three percent), unskilled (twenty-three percent), and professional (thirteen percent). The remainder was in managerial, sales, service, craftsman, and military occupations. The median annual income, $7,500, ranged from below $5,000 to over $15,000.

Studies of the community adjustment of *deaf adults* paralleled those of mentally retarded persons, although there have been fewer studies. The Lexington School for the Deaf of New York City conducted a series of studies. A follow-up study (Guilfoyle 1973) involved thirty hearing and 181 deaf young adults. The deaf subjects were employed in semiskilled and skilled occupations. Even though the deaf and hearing persons had started out with equal salaries, the hearing group received significantly higher increases. Among the deaf population, the characteristics seemingly related to job success were job-seeking industry, job satisfaction, and job skill.

A similar study (Reich and Reich 1974) followed up 278 former students whose age averaged twenty-eight years. The employment of deaf males was reported to be similar to that of hearing males but, like the Lexington study, the rate of advancement and salary increases was lower. Manual communication such as signing, finger spelling, and total communication was used by about eighty percent of the group.

In Illinois, a follow-up study of 464 deaf students who had been educated in four different types of programs was conducted (Quigley, 1969). The educational settings were residential, day schools in Chicago, day schools in other parts of Illinois, and public school classes for the general population. No differences were found across groups in wages and job satisfaction for similar jobs. However, the residential groups reported lower hearing ability and generally lower socioeconomic levels. Nonresidential persons were employed in more professional, technical, and clerical jobs. They placed a greater value on oral communication skills relative to job performance and had more social and marital involvement with hearing persons.

The relationship between communication skills of young deaf adults and their employers' estimates of success was studied by Blewitt (1976). Sixty-two employed deaf graduates who had finished school between 1970 and 1975 were studied. Employers completed the Employer Survey and the Minnesota Satisfactoriness Scales. Communication skills of the subjects were judged by trained observers. Analysis of the scale scores indicated no relationship between the effect of communication skills and the level of employment of deaf persons. However, this may not be so important as the relationship between living style and antecedent educational conditions. More sophisticated research attempts in this area need to be mounted.

The vocational success of *blind* persons depends upon some of the same characteristics as other kinds of handicapped persons, but there are some unique problems. A study conducted at the University of Michigan (*A Study of the Vocation Success of Groups of Visually Handicapped,* 1969) indicated that among a population of 939 subjects, most of whom were average intelligent males between the ages of twenty-three and forty-two, a high percentage was unemployed. Even among those employed, the average income was below the non-handicapped population. Vocational success depended on IQ, sex, level of education, and--a problem for the blind--the ability to travel. Interestingly, neither personality nor vocational aptitude test scores were related to vocational success.

The need for orientation and mobility training was studied by Lord and Blaha (1968). Parents, because of overprotection, were found to have an inhibiting effect on their blind children's learning of mobility. As a result, the youngsters had a limited knowledge of their environment and lacked in physical development. Twenty-three girls and twenty-eight boys, ages thirteen to twenty-one, were given an average of 108 class periods of intensive training by orientation and mobility specialists. It was determined that about 100 hours of training were necessary to develop mobility skills. However, the skills and mobility of blind persons were not the only elements involved in employment. Employer attitudes are of crucial importance.

One related study (Restad 1972) focused on the general attitudes held by school officials toward hiring blind teachers. A questionnaire consisting of thirteen descriptive items and a ten-item attitude scale was completed by 553 elementary and secondary school administrators. Administrators with the most education tended to be more positive in their attitude toward employing blind teachers. Also, those with prior experience with blind teachers tended to be more positive. If this situation should be found to apply to other employment areas, this could be of great importance. However, no information could be found that related skills, mobility, and employers' attitudes in other areas.

From these findings, justification for better training options emerged. In addition, reports from business and industry continue to support this conviction. Blind workers, for example, are reported to complete tasks faster and reduce maintenance costs on airline jobs and to demonstrate a greater understanding of technical problems in computer programming ("Blind Find Success...." 1969). Others credit handicapped workers for making few mistakes, having low turnover and absenteeism, and being safety conscious ("Jeno's Hearty Menu " 1972). Deaf workers for McDonald-Douglas not only have been judged to be better than average workers, but are reported as not as distractable as hearing workers (Louviere 1970: "No Communications Problems"). Simon (1962) similarly reported effectiveness of physically handicapped persons in government and industry.

The recognition that neither placement nor promotion of the handicapped could be credited to training programs in public education came as a sobering discovery. Not only did it reflect a demonstrated need for improving programs, but it also was consistent with the philosophical principle of normalization borrowed from our Scandinavian colleagues. This principle stresses the right of

every person to live as normally as possible. Above all it jealously guards the right of handicapped persons to try to participate in whatever social institutions or programs they desire. It is a fitting compliment to the data demonstrating the need for expanded adult role option training for the handicapped. Hence, career education has emerged as an opportunity to extend training opportunities for the handicapped and, thus, prevent Martin's (1972) predictions from becoming depressing reality.

CITIZEN ROLES

The adjustment of handicapped persons to community living and their rights as citizens appears to have generated many studies. The works of Baller, Charles, and Miller; Kennedy; and Richardson have been discussed. Retarded adults were seen to live lives that were more restricted socially and on a lower level economically. Clearly the adult world of the retarded is not as rich as that of nonhandicapped persons.

Specific descriptions of their life styles generally have been sketchy, with the exception of one study (Edgerton 1967). Taking a population of fifty-three mentally handicapped former patients discharged from a state hospital and training school, Edgerton secured the cooperation of forty-eight for extensive study. With mean age of 34.3 and mean IQ of 65.3, the group was nearly equally divided between male and female. All of those contacted developed elaborate schemes to hide their mental inadequacies. Edgerton called these the "cloak of competence." These were sometimes elaborate behaviors used to keep others from discovering their incompetencies. For example, many could not tell time. To cover up, some would wear a watch that had stopped. This was one of the many techniques used. While living patterns on the surface were not greatly different from nonhandicapped persons, they differed significantly in quality. Most dramatic was the report that benefactors were found to be necessary in all cases to assist the handicapped persons to cope with problems. Although the relationship of the benefactors and retarded persons varied, in most instances the benefactor assumed the dominant role.

In contrast to the coping mechanisms of the Edgerton participants, the concept of helplessness among the retarded was explored by Floor and Rosen (1975). Three groups of adults, twenty institutionalized retarded persons, twenty day school retarded, and twenty college students of comparable ages were given eight situation

tests which required self-initiated behaviors, a questionnaire from the Kessler Dependence Scale, and the Bailer Locus of Control Test. The mentally retarded were more helpless than the college students on all measures, but the highest relationship was between helplessness and locus of control. The study reported that, as expected, a sense of internalized control over environmental factors appeared to be an important factor in generalized coping ability.

Citizenship training for the retarded was criticized by Gozali and Gonwa (1973). An analysis of the items in the Wisconsin curriculum dealing with citizenship training revealed that fifty-seven percent of the units trained people for passive adult political roles.

In a different area, Egan (1967) compared eighteen educable retarded and eighteen nonhandicapped youngsters between age sixteen and nineteen on factors related to driving automobiles. Characteristics of the six females and twelve males in each group showed the normal youngsters were superior in physical skills, had higher scores on the written tests, and had only half the accidents of the retarded group.

In a test of citizenship behavior of institutional retarded persons, Cleland, Swartz, McGaven, and Bell (1973) set up a mock election at the time of a national election. Ninety-five persons voted. Despite their difficulties with the mechanics, fourteen percent insisted on voting with no help (a reflection of the "cloak of competence" phenomenon). Even with help, forty-eight percent spoiled their ballots.

Kokaska (1972) reported the voting percentage of the retarded in five studies to be: 64, 34, 34, 43-86, and 18 percent. The data appeared to reflect a greater tendency toward voting the longer the individual was out of school.

Skodak (1970) also found that a significantly greater number of graduates of integrated programs (fifty percent) were members of clubs and organizations than former segregated students (seven percent). Voter membership was difficult to ascertain because of the relatively young age of respondents. It was speculated that interest in voting does not become marked until the graduates have been out of school more than five years. Church attendance was estimated not to differ from rates of other citizens. Several former students were or had been in the military service with honorable records and various ranks.

Research in this area disclosed some sobering information. Fisher and Krajicek (1973) investigated the ability of retarded persons of the trainable level to name the parts of the body accurately. They found that less than half knew the parts and fewer than half understood sexual functions. Similarly, Edmonson and Wish (1975) used a semistructured interview with eighteen males, ages eighteen to thirty, to see if they could name body parts from drawings or photographs. Only twenty-eight percent of the responses were correct.

Barker, Hall, and Morris (1973) examined sixty-one noninstitutionalized mentally retarded persons age ten years, one month to twenty-four years, nine months, with a mean chronological age of seventeen years, seven months and IQ range from forty-one to ninety-five with a mean of 66.6. They studied self-concepts and attitudes toward sex. The parents filled out the questionnaire as they thought their children would. Knowledge correlated with the IQs and mental ages of the retarded subjects. The parents overestimated the knowledge of the low IQ retarded but underestimated the knowledge of the higher IQ subjects.

As a test of the rights of the retarded, one deinstitutionalized couple who had been helped to get married before deinstitutionalization were followed-up for two years. They were on welfare and unemployed despite attempts at training. Their two children were neglected; the marriage was chaotic. The investigators (Bowden, Spitz and Winters, 1971) indicated that the "dreary reality" that was revealed by the follow-up contrasted sharply with the original hopes for the couple. While marital problems are not unique to mental retardates, it appeared that caution should be observed before institutionalized retardates are encouraged to wed each other. The researchers noted that concern for the children is warranted.

Kohler, Brisson, and Chariassin (1968) attempted to assess the effects on children who have parents who are retarded. Six families with eight girls and four boys were viewed in a clinic situation. Half of the offspring were considered normal; the rest were below average. Irrespective of IQ, the frequency of associated disorders was high. Seventy percent had emotional and personality problems, sixty percent had retarded speech, sixteen percent showed delay in walking and twenty-five percent were enuretic. The researchers believe that the overall family low socioeconomic level and cultural poverty contributed to the childrens' emotional and educational deprivation.

Bidgood (1975) made an eloquent plea for the rights to normal sexual relations for the mentally retarded. He maintained that society has treated the mentally retarded as essentially asexual and something less than human, causing them to become emotionally and psychologically embittered. Bidgood proposed a sex education program to overcome these problems. In view of the investigations previously cited, it appears that uncritical acceptance of this view does not seem warranted. Sexual freedoms seem to need to be tempered by concommitant training in accepting responsibility.

In 1977 deJung attempted to measure the community adjustment of mildly retarded adults. The major study instrument was a forced choice self-description inventory consisting of seventy-eight statements grouped into seven headings: personal care, managing money, general behavioral rules or guides, work habits and attitudes, values or goals, attribution of success, and attribution of popularity. In preparing the forced choice format, statements were split into subsets of six statements each (within groups). Paired comparison items were formed by matching every statement within a subset with each of the five other statements in that subset. The 195 items were presented on index cards and shown to the subjects one at a time. The general instruction of the first four item groups was to pick the statement "you feel is most like you." For the value items the instruction was to pick the statement "you feel is most important for you to have a good life." For the attribution of success items the instruction was to pick the statement "you feel is most true of persons who succeed or get ahead." For the attribution of popularity items, the instruction was to pick the statement "you think is more likely to make a person popular." A total of 216 males and 168 females were surveyed. Their average age was twenty-one and they represented five geographically dispersed samples of community residents. They also were former special class education students. The results revealed the inventory yielded near perfect sequenced patterns of response--that is, internal consistency and task understanding. The subjects chose alternatives with consistency across items. The summative scores were relatively stable over the one year retest interval. The subjects had been rated either high (successful) or low (unsuccessful) by their vocational counselors relative to their community adjustment. The results revealed higher rated subjects tended to choose statements describing themselves as more confident, self-appreciative, industrious and more dependent upon oneself. Research is still being conducted to delineate what behaviors, attitudes, values, and circumstances separate success from failure.

FAMILY ROLES

Handicapped citizens must learn to assume responsible roles as family members. Many will marry and raise families. Skodak (1970) did not support the popular belief that special education students marry early, divorce early, have large families, and furnish pupils for succeeding special classes. Only four of the eighty-one marriages ended in divorce at the time of follow-up, one to fourteen years after leaving the school system. There were an average of two children per marriage.

The Rogan and Hartman (1976) study of learning disabled persons found eleven (fifteen percent) of seventy-two respondents married and only two (three percent) were divorced. Approximately fifty-five percent were independent of parental supervision. (It should be noted that about half were still between twenty-one and twenty-five years of age.)

Few studies focus exclusively on the role of the handicapped person as a family worker and contributor. However, one (deJung 1977) addressed itself in part to the importance of the family environment. Two hundred mildly retarded students (121 males, 79 females) were interviewed and tested prior to their high school graduation. The students provided data regarding changes that might have occurred over a post-school transition period in attitudes and values (as measured by the Forced-Choice Inventory), and a continuing description of their vocational expectations, experiences, and social living environments. Three follow-up interviews and testings were conducted over a year and a half, with about twenty percent attrition. The interview covered vocational preparation and expectation and social expectation. Some of the relevant results were:

- Approximately half of the living-at-home subjects indicated dissatisfaction; nearly ninety percent wanted to be on their own. A limiting factor in leaving home was employment.

- The family was important in fostering personal responsibility, initiative, and independence in the retarded member. Subjects who were succeeding vocationally and/or socially had families who took active interest in and reinforced achievements in encouraging independence.

- Reasonable limits regarding use of shared space, family responsibilities, hours, and activities need to be established. Subjects who were not succeeding tended to come from families which discouraged the retarded member from making decisions

about one's own activities, spending, and employment and which restricted outside activities and friendship.

- The family must be prepared to continue reinforcing adaptive patterns of responsibility, independence, and initiative after the retarded person leaves school.

- Many families are ill-prepared to assist the retarded member toward social and vocational independence.

The study also found sixty percent employed but only thirty-three percent engaged full-time. Trade and industry jobs were chosen most frequently by males (fifty percent); females selected service positions most frequently (sixty percent).

The College of Home Economics at the University of Nebraska-Lincoln has become a leader in developing research, service, and training programs in independent living for handicapped persons. In 1966, a unique program began which used a mobile unit for bringing information and services to physically handicapped homemakers. The unit "Homemaking Unlimited," contained devices for one-armed persons, special storage units, easy to use cleaning and laundry e-equipment, and work centers designed for persons in wheelchairs. Child care and clothing possibilities also were demonstrated. In order to assess the program's effectiveness, 100 disabled homemakers were studied (Schwab and Holm 1974). A set of cards illustrating seventy-two devices and arrangements shown in the mobile unit were mailed to each in order to ascertain evaluation of the device or idea. The homemakers were asked about preferred activities. Fifty-seven persons who ranged in age from twenty-one to seventy with a median of fifty years responded. The results were statistically different between older and younger respondents. Younger women changed and incorporated the ideas of the program more frequently than older ones. In general the study indicated that homemakers were sufficiently motivated by the program to try ideas that may not be particularly useful for them.

Schwab (1975) noted that little attention has been given to the vocational role of mothers within the family constellation. She noted that over fifty million women keep house and that approximately ten percent of the homemakers have a physical disability. When the homemaker is unable to perform activities or manage resources, families often experience economic and emotional hardship. Schwab noted the effects of a rehabilitation program relative to family attitudes, client self-perception, interpersonal relationships, and changes in vocational homemaking activities after recovery re-

habilitation services. Her sample consisted of twenty-two homemakers and their families in both experimental and control groups, age range thirty-two to sixty-one, with a median of 38.8. The experimental design emphasized kinds of changes that take place over eighteen months. The following measures were used: A Household Activities Performance Test, Homemaker Self-Report Inventory, Marriage Success Schedule, Husband's Attitude Scale, Youth's Attitude Scale, and Gough's Adjective Check List. Homemakers were evaluated and prescribed an individual education program based on their expressed goals and family needs. A consultant worked with the individual and the family. Pretest and posttest scores were not significant on any measures, although the rehabilitation counselor felt changes took place in both families and individuals.

In the attempt to help the handicapped learn to develop appropriate adult roles, many group homes which operate as training sites for teaching skills of independent living have been started. From rather modest beginnings, these homes have multiplied (Kolstoe 1960). Research to evaluate the effectiveness of these programs has not been forthcoming. A report of a Home Life training program that enrolled 100 educable retarded persons claimed to have been successful in improving the self-help skills of the youngsters involved but presented no comparative data ("Home Life Programming for Educables" 1974). There is no indication of whether the improvement is a result of the training or whether it is simply a matter of maturation.

AVOCATIONAL ROLES

While most follow-up studies alluded to leisure activity of the adult retarded, few have done more than record the amount of T.V. watching, going to movies, and the like. From a variety of tests used, it was found that the most important dimensions in attaining satisfaction were the degree of competence in the activity and the interpersonal relationships. However, little appears to have been done in this area to date.

The Research Department of the Curative Workshop of Milwaukee apparently is one of the few places engaged in this type of activity. Overs, Taylor and Watkins (1977) reported on a series of endeavors including R and D in avocational counseling. A total of 122 handicapped individuals of various disabilities was exposed to twenty-one counseling techniques including six interest inventories. Clients were placed in avocational activities in community organizations. Twenty-five resource opportunities were visited by

clients and counselors. Clients visited another thirty-one sites on their own. Seventy-two of the 110 clients who finished the counseling services were followed up in one to six months. Schools, it would appear, can do much to prepare the handicapped for avocational as well as vocational adult roles by helping them develop reasonable levels of avocational skills before graduation.

In 1974, the National Recreation and Park Association held a research needs assessment conference on leisure-time activity for handicapped populations. The purpose was to determine priorities for projects and activities. Five priority areas were identified: social psychology of leisure behavior; barriers to acquisition and maintenance skills; activity analysis, selection and programming; dissemination and utilization; and service delivery. Strategies to enhance leisure participation by handicapped persons were recommended for each area. The related research report (Verhoven and Goldstein 1976) emphasized that while a major portion of a handicapped person's life is involved with off-the-job concerns, this facet has gained little attention. From the review of literature in this area, this appears quite true.

CURRICULUM DEVELOPMENT

The relationship between the skills of reading, writing, arithmetic, spelling, and language and competence in career roles had not been investigated extensively. What had been reported was largely inferential information derived from job analysis rather than any comparative information. One of the early studies (Kolstoe 1961) studied forty-one mentally retarded young men above the age of sixteen who had gotten jobs after a training program and compared them with a similar number from the same program who had not. There was no difference in the academic achievement of the groups. At the level of jobs secured, academic skills apparently were not crucial to employment.

A much more extensive investigation of this relationship was made by Peterson and Jones (1964) who task analyzed 131 jobs being successfully performed by mentally retarded persons. The specific academic skills required for performance of each job were described. While the requirements varied enormously, the jobs were such that very little reading beyond directions, labels, and simple messages was required. (Their guide currently is being revised and will be

available in 1979.) However, in the original guide, there was no indication of the degree to which the inability to read is or can be a limiting factor, not only in employment but in other roles as well. There was no way of telling how many other kinds of career roles could be engaged in by the handicapped if academic skills were higher. While the work of Peterson and Jones was primarily for retarded persons, there is no reason the technique should not be applied to persons with other kinds of conditions. However, the same limiting factor mentioned above would still be implicit, namely, dealing with what is but not with what might be.

CURRICULUM

Little has been done to evaluate the effectiveness of various curricular approaches to career education for the handicapped. Nowhere could any comprehensive, comparative studies be found. However, the Management Analysis Center, Inc. attempted to identify effective practices from occupational education programs for the handicapped. The investigation (Improving Occupational Programs for the Handicapped, n.d.) involved the nationwide use of questionnaires followed by site visits to selected programs. Information from these sources was evaluated by other team members to identify practices. While practices differed from program to program, the following composite description emerged:

- Developed detailed plans before they started
- Searched for supplementary sources of support
- Selected and trained staff with care
- Developed an outreach program for prospective students
- Carefully monitored student progress
- Concentrated on prevocational attitude training prior to skill training
- Provided for a wide range of vocational training opportunities
- Correlated academic subjects with the vocational training
- Made use of a variety of support services from many agencies
- Involved employers in the development of prospective jobs
- Supervised the students on jobs and maintained active follow-up

A list of competencies germane to adequate adult role performance has been proposed by Brolin (1974). In the three curriculum areas--Daily Living Skills, Personal and Social Skills, and Occupational Guidance and Preparation--twenty-two competencies have been adopted

by many school systems. At this time, however, their relationship to efficient role functioning has not been validated. The competencies are:

- Daily Living Skills:

  1. Managing family finances
  2. Selecting, managing and maintaining a home
  3. Caring for personal needs
  4. Raising children, family living
  5. Buying and preparing food
  6. Buying and caring for clothing
  7. Engaging in civic activities
  8. Utilizing recreation and leisure
  9. Getting around in the community

- Personal-Social Skills:

  10. Achieving self-awareness
  11. Acquiring self-confidence
  12. Achieving socially responsible behavior
  13. Maintaining good interpersonal skills
  14. Achieving independence
  15. Acquiring problem-solving skills
  16. Communicating adequately with others

- Occupational Guidance and Preparation:

  17. Knowing and exploring occupational possibilities
  18. Selecting and planning occupational choices
  19. Exhibiting appropriate work habits and behaviors
  20. Exhibiting sufficient physical and manual skills
  21. Obtaining a specific occupational skill
  22. Seeking, securing, and maintaining employment

The competencies were an outgrowth of a study by Brolin and Thomas (1972) in which secondary special education teachers (N=251) and randomly selected administrators (N=30) were surveyed to determine the curriculum emphasis that should be given in instructing educable retarded students in four areas: academic, activities of daily living, occupational, and psychosocial. Response rate was seventy-three percent. The results were that the occupational curriculum area was rated significantly higher (.05) in importance than the other three areas. Based on this study and additional work, Brolin identified the twenty-two competencies which were agreed upon as most important by the 264 school personnel from six

school districts participating in Project PRICE at the University of Missouri-Columbia.

The PRICE Needs Assessment Study (Brolin, Malever and Matyas 1976) attempted to determine the major roles school personnel felt their discipline could assume in the education of educable retarded students; the major concerns which existed in successfully integrating students into regular classes; and the kinds of training, materials, and assistance needed to effectively meet student needs. The goal was to use this information to develop an effective inservice training program for school personnel in a career education context. The focus was on the career education competencies needed for successful community living and working. The subjects for the study were 264 school personnel in various positions from six midwestern school systems. The focus was at the junior and senior high school levels. The primary sources of data were two field questionnaires. The first ascertained whether the twenty-two competencies were the major ones for educable retarded students. A Project PRICE staff member visited every school to explain the study and answer questions. This resulted in a return rate of almost 100 percent. The respondents almost universally agreed that the twenty-two competencies were the major ones needed. The second questionnaire was constructed on the basis of the open-ended responses from the first set.

The results, presented in detail below, relate to each of the research questions posed:

1. Which school personnel are most appropriate to assist educable retarded students in acquiring various career education competencies?

   - The career education of retarded students should involve a wide variety of disciplines. All categories of counselors and teachers indicated their discipline was appropriate for certain competencies if they received necessary inservice training.
   - Daily living skills instruction is particularly appropriate for the home economics teacher. The special teacher should provide supportive service to regular teachers and direct services to certain retarded students who need specialized assistance, either in part or totally in this area. Several regular teachers were willing to assist retarded students in learning recreation and leisure skills.
   - Personal-Social skills, including basic skills, is an important area of involvement for many school personnel.

Music teachers particularly can be important and, to a lesser extent, art, physical education, and social studies teachers. Special education teachers believed this was an important area of involvement, particularly at the senior high level. Counselors, although generally indicating some involvement, did not reflect particularly strong commitment except in assisting retarded students to achieve self-awareness and self-confidence. Only special education teachers indicated that assisting the student toward independent functioning was within their responsibility. Language arts and special education teachers appeared most committed to teaching basic communication skills.

- Occupational Guidance and Preparation appeared to be the most deficient area. Junior high vocational teachers appeared more committed to working with the retarded student. Several regular teachers indicated a responsibility for helping retarded students learn sufficient physical and manual skills. This lends hope to the concept of each teacher needing to relate one's subject matter to its career implications. Presently, however, it appeared that the special education teacher will assume prime responsiblity although with no particular degree of strong commitment. Except for helping the retarded student make appropriate occupational decisions, counselors did not appear heavily committed to this area. There was little commitment in helping the retarded student learn how to adequately seek, secure, and maintain satisfactory employment.

2. What are the major barriers to successful integration of educable retarded students into regular classes?

- The major barriers--in rank order--for all personnel were: frustrations retarded students have in trying to compete; insufficient knowledge about how to work effectively with retarded students; extra time needed to instruct these students; and other students' attitudes, such as rejection, ridicule and pressure.
- Only twenty-five percent of the respondents indicated the following to be major concerns: lowered self-esteem regular class students develop of themselves; the parents' attitude lowered the work involved; the administrator's attitude about integration; the technical part of the courses; safety hazards; and behavior problems. Thus, many of these arguments which have been posed against the integration of the retarded did not appear warranted.
- Reading proficiency was not a major expectation of many regular teachers of the more academically-oriented courses. Even in

these, there were indications that such limitations are not insurmountable.

- The school personnel who appeared *most* concerned about the integration of retarded students, in order, are: special education teachers; social studies, vocational education, and business teachers; language arts teachers; and home economic teachers, math teachers, and administrators.
- Those school personnel who appeared *least* concerned about the integration of retarded students, in order, are: counselors; physical education and science teachers; and music teachers.

3. What are the training needs of school personnel in order to be more effective in teaching and counseling educable retarded students for career development?

   - The need to learn how to adapt or modify instruction and materials is the main training need of most personnel. All eighteen home economics teachers indicated such a need; administrators also believed this to be a major concern.
   - More knowledge about specific learning characteristics and how much to expect from students are also important training needs.
   - Personnel types who indicated the *most* need for inservice training were, in order: home economics teachers; administrators and special education teachers; and vocational, math, and physical education teachers.
   - Personnel who indicated the *least* need for inservice training were, in order: counselors, business teachers, and social studies teachers; art and science teachers; language arts teachers; and music teachers. This could indicate more the lack of desired involvement rather than training needs.
   - Administrators, home economics, vocational teachers, and special education teachers are interested particularly in learning more about job potentials of retarded students. Most counselors did not indicate such a need.
   - Special education teachers particularly appeared to need more knowledge about career education, more appropriate resources and materials, how to develop career oriented programs, and the occupational possibilities which exist for such students.

4. What kinds of instructional materials would be most helpful for teaching and counseling educable retarded students for career development?

   - School personnel were divided in their opinions as to what kinds of media and materials they need to be effective.

- The major need was for materials on the reading and ability level of retarded students.
- Approximately one-third of the respondents indicated, in rank order, the need for: materials providing rewards/feedback/evaluation; basic skills materials; self-contained individualized modules relating to regular curriculum but meeting the needs of retarded students; and audiovisual materials.

5. What kinds of roles are personnel willing to assume in assisting educable retarded students in career development?

   - Almost all teachers were willing to assume a role of teaching the retarded students information on certain career education competencies as well as how to perform them.
   - Personnel who were willing to counsel students about the value of the competencies are, in order: counselors; special education teachers; administrators; and home economics and physical education teachers.
   - There is a reluctance to train parents to assist students to acquire competencies. It appeared the special education teacher was most willing to do this.
   - Evaluation of student competencies was seen as necessary in the opinion of administrators and special education teachers, although there was not a high degree of responsibility indicated in terms of respondent's commitment.
   - Administrators and, to a lesser extent, special education teachers, felt responsible for: updating curriculum, supervising paraprofessionals, assisting teachers in evaluating their effectiveness, assisting in modifying curriculum, and helping teachers update themselves on materials and programs.

6. What kinds of assistance would be most useful to school personnel for more effective teaching and counseling of educable retarded students for career development?

   - Preservice and inservice assistance from special educators was critically needed by most personnel.
   - Methods and materials consultation was needed by many types of personnel. There was divided opinion about the usefulness of paraprofessionals.
   - Administrative approval and/or encouragement was not a major concern of most personnel.
   - Almost all personnel felt that special education teachers can assist greatly by sharing relevant information on the students' basic academic skills, values, and attitudes.

- Special educators were needed to assist regular teachers in generating modified materials; in particular, home economics teachers felt special tutoring would help the retarded student in keeping up.

Despite the absence of statistically supportive conclusions, the study yielded several implications:

1. School personnel appear to be willing to utilize competency-based career education for educable retarded students. A competency-based, programmatic curriculum guide would appear to be essential for successful integration.

2. Most regular teachers are generally receptive to the integration of retarded students for the development of certain competencies; therefore, successful integration is possible if appropriately planned.

3. A pressing need is evident for in-service training of all types of personnel if retarded students are to be accommodated by regular teachers.

4. Special education teachers have a changing role as career educator, resource specialist, materials provider and developer, remedial specialist, and coordinator of services to special students.

5. Counselors need to get more involved with these students, particularly in the Personal-Social and Occupational Curriculum areas.

6. Home economics teachers are generally willing to assist retarded students if they get inservice training, materials, and considerable assistance from special education teachers.

7. Several competencies need more fixed responsibility so that retarded students receive instruction in all career education areas.

8. A need exists for more emphasis on occupational guidance and preparation.

9. University special education teacher training programs need to place greater emphasis on career education, integration of students, and the changing role of special education teachers. Other teacher and counselor training programs must give more attention

to instructing trainees about the characteristics and potentials of retarded students.

A further validation of the twenty-two competencies was conducted at the University of Missouri-Columbia through a state-funded project, Project CESNA: Career Education Special Needs Assessment (Jones, Friar, and Swanson, 1977). A questionnaire was sent to 984 school counselors, special educators, and vocational educators in an attempt to identify critical competencies and training needs of educators to work more effectively with handicapped students in career education. The results included the following points:

1. Over seventy-four percent of the counselors identified seven competencies as within their area of responsibility:

   - Develop self-awareness
   - Develop self-confidence
   - Develop socially responsible behavior
   - Maintain good interpersonal skills
   - Develop independence
   - Know and explore occupational possibilities
   - Select and plan occupational choices

2. Over seventy percent of the special educators identified eight competencies as within their area:

   - Develop self-awareness
   - Develop self-confidence
   - Develop socially responsible behavior
   - Develop independence
   - Communicate adequately with others
   - Develop problem-solving skills
   - Maintain good interpersonal skills
   - Exhibit appropriate work habits and behaviors

3. Over seventy percent of the vocational educators identified seven competencies as within their area:

   - Develop self-confidence
   - Exhibit appropriate work habits and behaviors
   - Develop problem-solving skills
   - Develop adequate physical-manual skills
   - Know and explore vocational possibilities
   - Develop a specific occupational skill
   - Seek, secure, and maintain employment

In the Jones, Friar, and Swanson study (1977), a considerable amount of inservice training needs was identified by the respondents. The recommendations of the project were in-service and preservice models for implementation at the state and university level.

The PRICE project has stimulated many systems throughout the country to move toward a competency-based approach and, in many cases, to use the twenty-two competencies as the main objectives.

An example of a curriculum development endeavor that uses a career education model to organize a body of science knowledge for instructional presentation is being developed by the Biological Sciences Curriculum Study in Boulder. This four-year project, called "Me in the Future," organizes science content within the areas of vocations, leisure activities, and daily living skills. Each area is delineated into subcategories. The project, designed to produce and evaluate materials for educable mentally retarded (EMR) secondary school age students, divides each area into activities which provide science content and process skills. This is done within the context of career education. The first task, after developing a conceptual model, was to prepare a set of pilot materials. This was done by bringing together a group of special educators and science educators. The resulting pilot materials, designed with a career emphasis, were field-tested at the ninth grade in three high schools. Three questionnaires were designed to obtain feedback from teachers, students, and observers. The results revealed that at least fifty percent of all students tested achieved the maximum possible score on thirty-six of forty-three worksheets (Callahan 1977).

Based on the success of the pilot tests, further study was undertaken. Twelve test sites participated in a formative evaluation which involved feedback from teachers and observers, worksheets, and pre-tests and post-tests to evaluate student performance. Correlations were used to pinpoint specific areas of the activities needing revision. The items were analyzed for clarity and unwanted cues. Each was examined to ascertain its relevance to instruction. Instruction was examined to see its relevance to the objective. The objective was reexamined and reaffirmed. In 1977, another conference produced a second experimental edition of "Me in the Future." Each team (a science educator and a special educator) used information and experience from the first field test, formulated a revised cluster outline, revised existing activities, and wrote new ones. The eighteen clusters around which the content of the revised program is built follow:

Program Area:	Cluster Name:	Number of Activities:
Introduction	Metric	8
Science and Vocation	Agri-Business	13
	Natural Resources	12
	Construction	9
	Manufacturing	10
	Personal Services	9
	Public Services	9
	Transportation	6
Science and Leisure	Sports	9
	Nature	9
	Craft	10
Science and Daily Living Skills	Homes & Furnishings	9
	Self-Mobility	9
	Communication	6
	Personal Hygiene	12
	Raising Children	10
	Food Management	11
	Clothing Management	7

The revised program is undergoing a second field test. Evaluation will focus on the development of inquiry skills and problem-solving behaviors within the clusters and the program's ability to integrate process skills and science content with career education. The affective aspect of the program also will be assessed.

Becker (1976) studied the kinds of problems work-study coordinators were experiencing in providing adequate job placement for educable retarded youth. Ten problem statements were listed on a questionnaire with respondents asked to sort each into one of five categories: major problem, moderate problem, average problem, minor problem, and no problem. Problem statements were determined from interviews with coordinators and from available literature. Forty work-study coordinators from thirty-five school districts and the District of Columbia ranked each problem as it applied to their program. Mean scores determined for each of the ten statements resulted in the following ranking:

1. Having adequate time to improve and develop additional programs in the work-study curriculum

2. Having adequate time to guide and counsel on-the-job trainers

3. Obtaining adequate transportation to work sites for on-the-job training

4. Having employers hire the mentally retarded for on-the-job training when employers had no previous experience with retarded workers

5. Obtaining a wide range of different job openings to meet the various occupational interests and skills of trainees

6. Obtaining sufficient job openings in a particular job

7. Obtaining adequate physical facilities for the instructional phase of the special education program

8. Obtaining the cooperation from parents in carrying out the work-study curriculum

9. Having employers hire the mentally retarded for on-the-job training when employers had experience with retarded workers

10. Obtaining equitable salaries for on-the-job trainees

The problem areas identified should be valuable in forming guides to develop future work-study curriculum.

In a related study, Becker (1978) attempted to identify the problems encountered in the career education of trainable retarded youth. His methodology was to use a questionnaire with ten problem statements reacted to by forty-three TMR personnel. The problem statements are listed from most to least important:

1. Obtaining involvement of community, government, and voluntary service agencies in meeting the needs of workshop workers

2. Obtaining adequate physical facilities for the TMR programs, such as floor space and workrooms

3. Obtaining adequate transportation for workers to workshop facilities for training or employment

4. Having sufficient time and personnel to monitor the quality and quantity of worker-produced services and products

5. Obtaining skilled workshop personnel

6. Having adequate time for curriculum development and planning of the workshop program

7. Obtaining follow-up information on TMR workers

8. Retraining workers for new jobs due to mechanized procedures or job obsolescence

9. Having adequate time to guide and counsel workshop workers

10. Communicating with parents and enlisting their cooperation in the program

A recently completed study (Clark and Wimmer 1978) attempted to examine the content of selected career education curricula to determine the cognitive content implicit in career education, its appropriateness for the mildly mentally retarded population, and to identify levels of achievement measured by selected test items in the cognitive domain. Additional components compared current performance status of the mildly mentally retarded with a nonretarded comparison group. Sex and level of functioning (adaptive behavior) variables were considered within the retarded group.

The research was in two phases. Phase I involved the validation of career education content and included a content analysis of five major career education curriculum efforts. The analysis produced a Cognitive Skill Inventory consisting of 313 skill statements under four domains and forty-three subdomains. Of these, 231 were determined to be testable in a paper and pencil format. Test items were developed, content validated, and included in a Judges' Manual. The Manual was submitted to forty expert judges, including elementary and secondary MR teachers, and experts in higher education. Judges rated each on importance for the mildly mentally retarded population and estimated age levels for inclusion of the skill in the curriculum. Data from Phase I were utilized to construct a sixty-item Career Education Cognitive Item Battery, sampling items in proportion to importance rankings and content domains.

Phase II involved administration of the Item Battery to 2,400 mentally retarded and regular education students in three school districts. The purpose of the data analysis was to investigate the characteristics of individual items making up the assessment instrument. Difficulty indices based on correct percentages for each item were computed by age level for the MR and nonretarded groups. Group differences based on total instrument performance also were investigated. The major findings were:

1. Judges agreed that the majority of skills within the Cognitive Skills Inventory were important to include in the curriculum for mildly mentally retarded students.

2. They also agreed on expected age levels for including skills instruction in the curriculum; secondary school teachers reported lower age levels than elementary school teachers.

3. The participants achieved mastery level on only seventy-seven percent of the items within the Cognitive Skills Inventory.

4. There were no differences on total test performance and level of adaptive behavior due to the sex variable.

5. Age accounted for about one-third of the variance in total test score.

6. Nonretarded students scored significantly better than retarded students; the mildly retarded performed significantly better than low functioning students.

7. Judges only moderately predicted the actual mastery ages achieved by the retarded students.

While supporting the inclusion of cognitive skills within career education, the study revealed the need for future investigations to validate this content domain for handicapped and nonhandicapped populations. The study also revealed that, in general, students have not received a comprehensive career education developmental program.

One recently completed project (Apffel, 1978) piloted a procedure for teaching moderately retarded persons to use public bus transportation independently. The objectives were to determine the feasibility of, field test, and refine and package a mobility training program. The first year's emphasis was on identifying and generating task analyses and instructional skills sequence and teaching procedures in which community mobility skills could be taught most efficiently. Through the implementation of a three-cycle testing process, various aspects of the curriculum were refined during the first year. During the second year, the curriculum was extensively field tested and an instructional manual was developed for dissemination.

TEACHING COUNSELING METHODS

Career education introduces a conceptual focus which emphasizes career awareness, exploration, preparation, and placement as fundamental tenets in preparing learners for living and working. Villemarette (1975) implemented a career education project in a rehabilitation center to ascertain whether such principles as the development of self-awareness, career awareness, planning, and problem solving skills could be enhanced in a multi-disabled population. The sample was sixty-six clients: thirty-three experimental; thirty-three control. The treatment variable was a career orientation activity consisting of twenty-five hours of didactic materials, a field trip, filmstrips, a video-tape presentation, discussions on career development and the World of Work Adjustment training and its implications for the handicapped and career planning. At the conclusion of a two-week period, the Career Maturity Inventory, Tennessee Self-Concept Scale, and Rotter I-E Scale were administered. The Delgado Rating Scale assessment figures were derived at the client's termination from the vocational adjustment program. The study produced the following results:

1. Experimental clients achieved significantly higher CMI "Goal Selection" scores (.05 level).

2. Significantly more experimental clients achieved average or above average work adjustment ratings than the control subjects (.05 level).

3. The Career Orientation Activity also favorably influenced the performance of the more able clients (those with IQs of 90 or better) on the CMI constructs "Goal Selection" (.005 level) and "Occupational Information and Planning" (.05 level).

4. The activity had no apparent influence on the following constructs: career attitude, self-appraisal and problem solving (as measured by CMI), focus of control (Rotter I-E), and self-concept (Tennessee-Self-Concept Scale).

Two other studies attempted to assess the effectiveness of vocational counseling. Anderson (1974) attempted to measure the efficacy of applying basic principles of vocational counseling theory to the actual career decision processes of educable retarded high school students enrolled in a work-study program. Focus was on the relationship between "Self Concept as a Worker" and "Congruence in a Vocational Choice," since these two dependent variable measures have

been regarded as critical determinants in the vocational choice process. The sample consisted of 103 male and female special education students and a comparison group of thirty-eight high school students in the regular program. The subjects completed two self-report instruments, had IQs between 50-85, and were actively engaged in the work-study program. A randomized analysis of variance yielded the following results:

1. "Congruence in a Vocational Choice" was not significantly related to a corresponding measure of "Self Concept as a Worker" at the .05 level. Traditional theories of vocational counseling which described the existence of a significant relationship between self-concept and vocational congruence were not validated in the decision processes of the EMR high school students.

2. Patterns of "Self Concept as a Worker" were sufficiently different between special education students and their counterparts in the regular classroom to distinguish the two groups (.05 level).

3. "Self Concept as a Worker" was not demonstrated to be significantly related to criterion of grade, sex, and combined effects (.05 level).

Dickerson (1975) attempted to assess the comparative effects of a group vocational counseling program and of a treatment control program on work attitudes and performances of educable retarded and emotionally disturbed adolescents. The sample, sixty-nine subjects from a vocational center, was randomly assigned to group counseling and "videotaping only" treatments with nine students assigned to three of the counseling groups and ten assigned to the fourth. The four videotaping groups consisted of eight students each. Half of the items of the Attitude Scale of the Crites' Career Maturity Inventory were administered to the students on audio tape. Students also were rated by their teachers as to their work performance on a Student Worker Evaluation Progress Report. The experimental group of thirty-seven students received group counseling, six thirty-five minute sessions on job seeking skills. The four control groups of eight students each filled out the job applications in their English classes during the sixth week of counseling. In the seventh week, all students in the two types of treatment groups underwent a standard job interview, recorded on videotape, which could be viewed immediately after completion. The measuring instruments were then readministered one week after videotaping and a follow-up given four weeks after the posttests. Data were examined by gain score analysis in comparing score differences between experimental and control groups on post and follow-up testing. The results indicated that there was a significant improvement between experi-

mental and control groups in work attitudes after counseling, although this improvement disappeared by the one month follow-up. In addition, there was no greater increase in positive work behaviors after the completion of group vocational counseling when counseled groups were compared with control groups. The researcher concluded that while group vocational counseling resulted in more favorable work attitudes on posttesting, neither it nor videotaped job interviews produced a gain in favorable work behaviors.

Neely and Kosier (1977) attempted to determine whether a structured Vocational Exploration Group (VEG) experience affected the self-ratings of physically handicapped students in comparison with non-handicapped. The VEG consists of a series of eighteen sequenced tasks focusing on job function, job demands, and job satisfaction with two graduated methods of group interaction, namely, self-disclosure of thoughts about jobs and peer feedback for acknowledgement and acceptance. The sample consisted of eighty-nine non-handicapped and fifty-four physically handicapped students. The sessions took place in counselors' offices or classrooms. Self-ratings on the Rating Scale (an adaptation of the Job Inventory Activity in the VEG Kit) were made prior to the VEG experience, immediately following the session and at least two weeks later. The results indicated that for the physically handicapped students a change to more options on delayed VEG data than their self-concepts had previously permitted; significant increases in aspirations that tended to reveal self-confidence and independence; and significantly greater changes in self-recognition of work potential. The researchers concluded that the application of such a group process as VEG appeared to enhance both vocational aspirations and self-concept.

Brown, et al. (1972) described a demonstration project designed to maximize three important work attributes: quality, quantity, and durability. Four subjects participated in the study: two were fourteen, one was sixteen and one was eighteen years old. WISC IQs ranged from fifty-six to seventy-nine; all were considered to be behaviorally disordered. All had been enrolled in public schools for at least four years but had been institutionalized earlier. The subjects were taught to assemble packs of index cards by well-delineated instructions. Sample rates of production were obtained from non-retarded persons; seventy percent of that range was designated as acceptable production. The process was as follows: teaching the work task, baseline, weekly payment, session payment, session payment plus high rate contingency, daily payment, and weekly payment. Substantial increases in quality, quantity and durability were observed in comparing performance of the subjects from baseline to weekly payment. Two of the four subjects produced within the com-

petitive employment rate criterion. The researchers concluded that the job requirements of many community vocational settings are within the capabilities of retarded and severely disturbed individuals.

Two other studies examined the effects of work experience on the work personality of retarded adolescents. Rosenberg (1973) attempted to determine what affect a vocational work-training program had on mentally retarded adolescents in improving their self-concept during an eight-week summer residential program. The variables were the treatment (Work training) as constrasted with the control (Sheltered workshop). Two instruments were used to measure self-concept, the Piers-Harris Children's Self-Concept Scale and the Self-Attitude Scale. A work performance rating scale was used to measure work attitudes and performance as judged by counselors. The sample was eighty clients of a special education summer residential facility (forty-two males and thirty-eight females). The treatment group consisted of twenty females and twenty-three males with a mean age of 18.6 and IQ of 45.4. The control group consisted of eighteen females and nineteen males with a mean age of 18.9 and IQ of 46.4. Using multi-variate analysis of variance, the following resulted: the experimental group had more positive work performance ratings, higher self-concept and self-attitudes scores than control group; self-concept scores among males and females in experimental groups were similar while the control group revealed noticeably more positive self-concept scores in females. The conclusion was that work-training programs for the mentally retarded are more successful when compared to the more conventional sheltered workshop approach.

Brummer (1973) assessed the impact of full-time, paid work experience upon the development and clarification of the measured vocational needs and interests of mentally retarded adolescents. Subjects were vocational rehabilitation agency clients who were sixteen to twenty years old, had ability to benefit from a summer work experience, had no previous paid work experience, and were currently enrolled in or recently terminated from a work-study program in high school. Control subjects were selected by vocational rehabilitation in a neighboring city. Experimental subjects participated in a summer work program, the study's independent variable. Both experimental and control groups were administered instruments designed to assess vocational interests and to assess vocational needs before and after the summer employment program: the Vocational Interest and Sophistication Assessment (VISA) and the Minnesota Importance Questionnaire-Form S (MIQ-S). The results were that the experimental group had increased differentiation among their vocational needs (MIG-S) after their summer employment experience; no other significant differences were found between experiential and control groups. The investigator

noted the following limitations: quasi-experimental design, the brief duration of treatment, small sample size, and the exploratory nature of the measurement instruments.

Career education for deaf students has been investigated to determine its efficacy. Hehir (1973) initiated an experimental, integrated occupational education program for selected state school deaf students to determine the effectiveness of the program as opposed to a segregated, occupational education program. Twelve deaf students were selected to begin their occupational education in BOCES (Board of Cooperative Educational Services) and were enrolled in automobile mechanics, maintenance mechanics, clothing occupations, agricultural mechanics, and conservation courses. Ten students from the Rochester School for the Deaf also were admitted to a BOCES program in data processing, electricity, computer programming, automotive services, food services, and automobile collision. Coordinators were employed to serve as liaisons between the schools for the deaf and BOCES. Reports on student progress both from the school for the deaf and from BOCES were evaluated on a periodic basis to determine needed changes and improvement. Measures included subjective appraisals from the occupational education teachers, a performance evaluation based on task completion, written tests for evaluating student progress, and demonstrations of hands-on operations in certain occupational education areas. The results were that half of the deaf students made the honor roll at the two BOCESs. In addition, all except one student graduated and moved on to further training in related fields, went to college, or were placed in occupations (e.g., landscaper, maintenance mechanic, power machine operator, farm owner, operator, food service worker, key punch operator, automotive repair, groundskeeper, auto collision worker).

Munson and Egelston (1975) reported on a career education model and materials developed by twelve schools in New York State under a Cooperative Research Endeavor in the Education of the Deaf demonstration project. The model included four channels of vocational learning and maturation: the self, the experiential, the conceptual, and the informational. Project materials included six games in self-exploration related to careers, twenty-three slide sets portraying different work functions, and field trip manuals. Program impact was evaluated on 129 deaf students with a mean age of 15.1 years and compared against 186 deaf controls with a mean age of 13.9 years. The study revealed that the self-concept of the subjects was not adversely affected by activities designed to raise their awareness about the world of work.

In Manzitti's study (1976), 116 coordinators of special needs projects were sent questionnaires to determine the extent of mainstreaming in the project in terms of the kinds of handicapped persons served. The reports indicated that the mentally retarded were mainstreamed the most and the emotionally impaired the least. Parents of the handicapped and the special education teachers were most supportive of mainstreaming; the regular class teachers and parents of non-handicapped children were least supportive.

Collister (1975) studied mentally retarded special education graduates from a special school compared with twenty-three retarded youngsters from a mainstreaming school. Interviews with the children one to two years after graduation revealed few differences. Where the training takes place apparently was not a crucial variable. Mainstreaming is neither more nor less effective than special classes. Chaffin et al. (1971) supported this finding. Comparing thirty youngsters who had been in a work-study program (experimental group) with twenty-eight youngsters who had not, he found the wages of the work-study group averaged $90.45 per week compared to $62.84 for the non-work-study. About the same percent were employed--eighty-five percent versus seventy-five percent. Chaffin noted that the goal of the program was not to make the participants employable but rather to enhance the employability they already have.

A series of studies by Hamdani (1977) compared the amount of vocationally related information of boys and girls, blacks and Anglos in low social economic areas. No differences were found among sexes or races. However, children from low social economic backgrounds were significantly less informed than their middle class peers. Also, forty-two boys and thirty-five girls with a mean age of fifteen years, eleven months in the tenth grade, were given pretests and posttests separated by a 100-hour intervention program designed to increase vocational knowledge. The tests were the Career Maturity Inventory (CMI) and the Career Development Inventory (CDI). The CDI scales measure career planning orientation, familiarity with career resources, and occupational information and knowledge of the decision-making process. Although significant gain scores were recorded, the final scores did not exceed the scores of typical sixth graders. Thus, even in a program designed to increase the vocational knowledge, youngsters from disadvantaged backgrounds made extremely poor scores on the tests.

Many training programs have insisted that the parents of the participants be active supporters of the programs. Some have prepared contracts that specify what parents are supposed to do to facilitate training. The child, the parents, and the teacher all sign these

documents. Unfortunately, no studies appear to compare either the effectiveness or the influence of parental support.

Galloway and Goldstein (1971) supported a study in which relatives of thirty-three clients (experimental) were selected for group therapy. The clients were compared with a second group (control) whose relatives did not receive any therapy. The experimental group improved in a number of personal and vocational objectives, whereas there was no change in the control. Apparently one of the important variables in training programs, indeed, involves the understanding by parents or other support relatives of program objectives. Until definitive research establishes the exact dimensions of the contribution of understanding, it appears that securing parental support is an important activity, in spite of the fact that no one knows just how important it is or why.

Taylor (1973) compared the adaptive behavior of educable mentally retarded persons sixteen to forty-five years of age who were successfully living in a group home with a group that was not. As would be expected, those who were not getting along well were judged to be untrustworthy, hyperactive, and unable to handle economic matters. This, however, does not provide much guidance as to how group homes can improve the future functioning of the clients in the development of skills of independent living. Hyperactivity may be a deterent to acceptance by other persons in a group home but is of little consequence when one lives alone. This area is clearly in need of further investigation.

A proposal by Simpson (1973) that has not had the attention it deserves is the use of the home as a career education center. It was her idea that through the use of TV tapes or computer terminals, short courses could be offered as outreach activities. Although the intention is that these programs would be sponsored by colleges or universities, there would be no reason to restrict sponsorship. Community colleges, trade schools, or businesses and industries also could offer the training. The concept has been tried as part of a parent training program at Purdue. Also the Federation of Rocky Mountain States, Inc. used a satellite to transmit programs emanating from Denver to remote schools, but the idea has not been fully developed.

CAREER ASSESSMENT, EXPLORATION AND PREPARATION

One of the early studies in this area was conducted by Bitter and Bolanovich (1970). They developed a forty-item Work Adjustment Rating Form that sampled the amount of supervision required, the realism of job goals, skill in teamwork, perseverance in work, the extent the person seeks assistance, and the importance attached to job training. Using a pooled judgement of employability from these judges, they achieved a correlation of .76 with actual employment success two years after training terminated. An interesting finding was that ratings made after only three weeks of training were similar to those taken after sixteen weeks.

Bingham (1978) studied the scores on the Career Maturity Index of thirty sixth grade boys and thirty ninth and tenth grade boys diagnosed as learning disabled and compared them to the scores made by equal numbers of nonlearning disabled boys of the same grades. On all measures, the learning disabled boys were inferior.

Knight (1972) investigated the question whether or not educable mentally retarded students in special classes had realistic occupational aspirations. The sample was eighty-three students in fifteen schools. IQ means were 63.83 for Caucasian students (N=43) and 66.25 for black students (N=40). An oral questionnaire was administered to students regarding what kinds of jobs they would like to have when they grew up and what they expected to obtain. For the first question, responses covered all major occupational categories with the most frequent types being services areas. Structural work was the second highest category selected. Responses to question two varied, although statistical comparisons revealed that both groups gave realistic responses. Knight concluded that parental expectations may have some influence on occupational expectations of their children and that parents of retarded children may have a different set of expectations.

Folman and Budoff (1971) studied the differences in vocational development between special and regular class students from low income backgrounds. The sample consisted of forty-six educable retarded students and thirty-three nonretarded students. All students from one junior high school except those with demonstrable cerebral involvements were included. The regular class children were drawn from three low-level seventh grades and represented a "risk" population, having failed at least two subjects and were on the average one year younger than the special class students. All students were

administered Koh's Block Design Test to ascertain learning potential. Each was assigned a learning potential status, based on three performance patterns: high scorers who performed well on initial testing; gainers who performed poorly on the pretest but improved markedly following instruction; and nongainers who performed poorly on both the pretest and the posttest. All were interviewed individually in a one-hour session which recorded their present occupational status (after school jobs and interests), the vocations which they aspired to and expected to obtain, perception of parent aspirations, and the realism of one's future plans. The results indicated:

1. No significant difference existed between special and regular class students relative to present after school employment. Special education students who had higher learning potential also had more jobs and for longer periods.

2. The majority of students in both categories aspired to jobs which were similar to those they expected to attain. Special education students tended to aspire to and expected to obtain lower level jobs. Within the special class, nongainers tended to have more unrealistic aspirations than high-scorers and gainers and seemed to have more "wishful thinking."

3. In understanding vocational choices, both groups were similar. Most indicated familiarity with job requirements but could not specify how they knew. Significantly more retarded students chose jobs identical to those in which a family member was engaged. High scorers expressed greater familiarity with job choices and were consistent in their choices for blue collar jobs. More nongainers aspired to white collar jobs and yet lacked familiarity with these choices.

The researchers concluded that there are few differences between the two groups in regard to vocational development. However, the special class group differed markedly in ability and motivational factors and learning potential status differentiated between the more or less able within the narrowly defined IQ range.

Orsini (1974) examined the maturity level of educable mentally retarded students relative to selecting their life's work. Career maturity of retarded students in special classes (N=40) and those in regular classes (N=50), twelve to seventeen years of age, were administered the Crites Career Maturity Inventory Attitude Scale (CMI). The results were:

1. Retarded students in regular classes scored higher on the CMI Attitude Scale than those in special classes (t-test, .05 level).

2. Career maturity scores of regular class students were related significantly to chronological age, mental age, and grade but not to IQs. (Pearson's product-moment correlation). Grade was the highest predictor of regular class students' CMI scores.

3. Career maturity scores of special class students were significantly related to mental age and IQ but not to grade or chronological age, with mental age being the highest predictor of scores.

About half of the fifty items in the scale were missed by two-thirds or more students. A special program was designed to enhance the maturing of career attitudes of retarded students in grades six through eight. The program, called SPARK (Special Program Appropriate for Retarded Kids), was designed to incorporate the students' academic subjects and social experiences in their total environment.

Vocational interest assessment has been a difficult area in measuring the preferences of retarded individuals because the required reading level and the jobs are beyond their capability. Becker (1973) devised a nonreading technique to measure the vocational preference of educable mentally retarded youth. He determined the areas of business and industry in which the educable had demonstrated success. Subjects were a public day school and an institutional group regionally selected. The Guide To Jobs for the Mentally Retarded (Peterson and Jones, 1964) and other job data were the source for developing the Reading-Free Vocational Interest Inventory. Eleven categories were identified: males--automotive, building trades, clerical, animal care, food service, patient care, horticulture, janitorial, personal service, laundry service, and materials handling; females--laundry service, light industrial, clerical, personal service, food service, patient care, horticulture, and housekeeping. Job activities items were obtained from the literature and assigned to criterion categories to form interest clusters. Each interest scale consisted of fifteen items. All drawings were submitted to a review committee for recommendations. A forced choice test format was designed in which the examinee selected one of three pictures. A series of item analyses were conducted. Content reliability and validity of the individual test items were established. Norms were established on 6,400 educable mentally retarded subjects geographically distributed. An empirical validation study was made with

891 school and institutionalized males and females. Temporal reliability was obtained from the same subjects using the Pearson product-moment correlation. Correlations were mainly in the .70s and .80s.

The Rehabilitation Research and Training Center on Mental Retardation at the University of Oregon is perhaps the most extensively operated research center attending to the career development needs of retarded individuals. A major thrust within their Program-Related Assessment core is related to evaluating work-study programs and rehabilitation services for mildly retarded young adults. A major outcome of this endeavor has been the development of the Social and Prevocational Information Battery (SPIB). The battery originally was developed for use with the mildly retarded (Halpern, Raffeld, Irvin and Link 1975a) and is now available in published from (Halpern, Raffeld, Irvin and Link 1975b). Recently, it was adapted for the moderately retarded (Irvin, Halpern and Reynolds 1977).

Halpern and his associates identified five broad domains of adult community adjustment: employability, economic self-sufficing, family living, personal habits, and communication. Within these areas, nine separate knowledge tests were developed: job search skills, job-related behavior, banking, budgeting, purchasing, home management, health care, hygiene and grooming, and functional signs (survival reading). There are 277 items in true/false and picture selection format which are administered orally. Each test contains approximately thirty items. Items were selected according to a domain sampling model. Each domain was specified hierarchically into fifty-four content areas and 180 subcontent areas across the nine domains. The subcontent areas served as a blueprint for generating test items for possible inclusion in the battery. Three studies have been conducted to examine the relationship between SPIB and applied performance (Rehabilitation Research and Training Center in Mental Retardation, 1977):

- To estimate predictive validity, a sample of vocational rehabilitation clients was rated by rehabilitation counselors in twenty-nine behaviors in the areas covered by the SPIB. (They had been tested one year earlier prior to high school graduation).
- To estimate concurrent validity, a second sample was tested and rated by their counselors within a three-month period.
- To estimate concurrent validity of the SPIB-T, a sample of community facility residents was used. An applied performance scale consisting of eighty-seven items was constructed to parallel the content of the SPIB-T. Testing and ratings were done in three months.

Correlational analyses were conducted for each of the studies. Canonical correlations, using the nine SPIB tests on one side of the relationship and the major subscale of the criterion instrument on the other side yielded the following correlations: .58 in the SPIB predictive validity study, .61 in the SPIB concurrent validity study, and .75 in the SPIB-T concurrent validity study.

On the basis of these results, it was suggested that knowledge and applied performance in the SPIB domains were highly related to one another. Another project is examining the concurrent relationship between knowledge and applied performance in social and prevocational domains. More stringent measures of applied performance are being developed. Other projects have been proposed that will examine the validity of the SPIB as a predictor of vocational adjustment and attempt to discover how the instrument can be improved.

Although they will not be discussed thoroughly here, other assessment and exploration materials have been developed. Project Discovery, a hands-on, simulated work and guidance and counseling combination, is a systematic approach to career and vocational exploration which allows the student to search for a career theme rather than just a job. Ten exploration packages, written at a third and fourth grade level, have been designed for special needs learners. The package, which can be used alone or combined with other activities to form a more comprehensive system, are: masonry, plumbing, wall coverings, auto body repair, accounting and bookkeeping, filing, advertising and editorial design, greenhouse work, skin and nail care, and hair care and styling.

Research on school exploration programs indicates it to be an effective tool in career development, particularly in career awareness. CETA research also has indicated programming effectiveness in developing youth employability. Specific information on the system can be obtained by contacting Project Discovery, Southwest Iowa Learning Center, 401 Reed Street, Red Oak, Iowa 51566.

A number of work evaluation systems have been developed by rehabilitation personnel and have become available commercially. Although difficult to validate, they are becoming popular because of their face validity and closer relationship to the world of work and jobs listed in the *Dictionary of Occupational Titles*. In addition, many of the systems do not require adherence to standardized testing procedures. Some of these systems are listed in the appendix.

RESEARCH IN PROGRESS

Substantive research in this area is just getting underway. Primarily it stems from federal agencies and legislation, particularly the Vocational Education Act. The Bureau of Education for the Handicapped has funded several research projects in this area over the past ten years. In addition, the Office of Career Educaiton and the National Institute of Education have encouraged R and D efforts. Some projects currently in progress are identified below.

The Career Accessibility Model (CAM) is being conducted by the Institute for Career Research, Hanover, Massachusetts (Post 1977). The project is developing a systematic approach to increasing job options for the educable mentally retarded in the marketing and distribution cluster. Through a process of job restructuring with employers, competency-based mainstreamed instruction and pro-active placement and follow-up activities, CAM enables students to enter at any point and receive appropriate career information, instruction, and/or placement. The process utilizes a task analysis base of 122 occupations and 40,000 performance objectives. To date thirty-eight new career options have been developed in ten companies.

The CAM model is being pilot tested in six school systems. Teacher instructional materials guides are provided for conducting curriculum activities. Instruction is centered around actual employment opportunities which have been developed in the job generation phase. Job placement occurs when the student is prepared for the entry point of the new career option. Evaluation of the project will focus on the student's self-image as a worker, attitude toward work, attainment of general employability skills, competence in performing employment tasks, and attitudinal barriers against employing handicapped workers. A General Employability Questionnaire has been designed to capture the perceptions of employers regarding the job adjustment factors necessary for successful employment. Parental support also is a part of the model. The General Educational Development test (GED) and Q-sort are used to reveal parental perceptions of their children's social and occupational needs. An implementation manual will be developed.

The Human Resources Center also is conducting research in this area (Gentile, 1978). Its Career Education Program has four objectives: to design and develop a comprehensive model for orthopedically handi-

capped children, pre K-12; to prepare a battery of assessment tools to monitor and determine the career development status and needs of these children; to determine their career education needs; and to test, validate, and disseminate curriculum program guidelines. The model includes a pretest, posttest design. The dimensions evaluated are self-concept as measured by the Piers Harris Self Concept Scale, career interests as measured through the Comprehensive Career Assessment Scale, and career knowledge as measured by the SRA Career Concepts Inventory. Pilot needs assessment tools include instruments for parents, students, business persons and teachers. Twenty-one program objectives were formulated for the physically handicapped students which cluster into three major areas: self-awareness, decision making toward independent living, and career awareness. In the last year of the project there will be a comprehensive, sequential pre-K-post-12 program.

Rouse (1978) is developing a replicable, transportable awareness and exploration curriculum whereby intermediate age educable mentally retarded students can achieve significant growth in career education elements, primarily through interaction with nonhandicapped intermediate age students. In Project SPICE (Special Partnership in Career Education), retarded and nonhandicapped intermediate age students are paired together for a variety of activities. Among these are peer tutoring, career-oriented on-site experiences, and the preparation of special projects which are then presented to the entire group. A deviation from mainstreaming, this approach revolves around totally success-oriented experiences, thus avoiding the frustration which too often accompanies mainstreaming. A handbook is being developed for potential users. In addition, four classroom instructional modules including student performance objectives, pretests, posttests, student worksheets, and alternative implementation strategies will be available. Project evaluation data will focus on student growth in self-concepts, attitudes toward learning, reading and mathematics, and career knowledge and expectations. All students, both project and control, will be pretested with validated instruments.

Another project meeting an important unmet need is being conducted by Helge (1978). It was the first Office of Career Education project funded specifically for the purpose of training university faculty to infuse career education for the handicapped into ongoing curriculum. It also will attempt to facilitate the abilities of inservice educators in this area.

White (1978) currently is attempting to demonstrate that successful methods of career education and guidance for sighted students can

be successfully used by visually disabled students. Entitled "A Self-Directed Career Planning Program for the Visually Disabled", materials and processes from The Florida State University's Curricular Career Information Service is being adapted for use by blind individuals in high schools, community colleges, vocational technical schools, colleges, and rehabilitation agencies. In addition, materials and procedures responsive to the unique career needs of the visually disabled are being developed and evaluated. Specific goals of the project are to increase the amount of occupational information available to visually disabled individuals without requiring the use of a reader or counselor to disseminate it; to provide the opportunity and resources for students to increase their decision-making skills on career and academic matters; to provide students opportunities for self-assessment and identification of occupational possibilities; and to provide opportunities and resources for learning employability skills.

Larsen (1978) is currently adapting the Experience-Based Career Education model to meet the career education needs of mildly mentally handicapped secondary students. The model developed by the Appalachian Education Laboratory is being used for R and D. Guides are being rewritten for use with these students. The project served thirty students during 1977-78. The major goal is to provide experiences which will enable students to develop better work skills, make realistic career decisions, and achieve maximum academic achievement. Several evaluation instruments are being used, including the Social and Prevocational Information Battery, Inventory of Basic Skills, Wide Range Achievement Test, checklists, interview forms, attitude surveys, progress reports, and parent evaluations. The project is particularly significant because, as far as one can determine, it is the only model of the four USOE models that has been adapted specifically to the handicapped.

A Vocational Services Program for Persons with Developmental Disabilities project at the University of Nebraska-Lincoln is attempting to demonstrate that independent living training for those with multiple developmental disabilities may break down barriers to accepting oneself as a contributing, growing, capable individual. (Wright and Thiel 1978). The program focuses on knowing oneself, gaining decision-making skills and interpersonal skills, and knowing that one has the ability to change. Independent living assessments are done at the university by a team consisting of a coordinator, independent living specialist, industrial engineer, speech therapist and audiologist, vocational readiness counselor, and job placement specialist. The team completes an action plan in which training equipment, new items, and referrals assist the individual.

The results of the program are now being analyzed and will be available from the Department of Human Development and the Family.

Many other federal and state funded projects hold promise for handicapped persons. Several relevant projects are:

- "Teaching Interpersonal and Self Management Skills to Mildly Handicapped Adolescents as Part of a Career Education Curriculum." University of Indiana. (Bureau of Education for the Handicapped)
- "The Development, Field Testing, and Dissemination of a Leisure Education Curriculum for Severely Handicapped Children and Youth." Institute for Career and Leisure Development, Washington, D.C. (BEH)
- "Development of Research Utilization Modules to Improve Education Services Through Camping for the Physical Disabled." University of Kentucky. (BEH)
- "Development of a Program Model for Training Folk Crafts to Handicapped Children and Youth." University of Kentucky. (BEH)
- "Evaluation of Retarded Student Achievement in Career Education Programs." University of Oregon. (BEH)
- "Applying Experience-Based Career Education to Handicapped Secondary Students." Arlington, Virginia. (Office of Career Education)
- "What's the Difference in Career Education?" American Institute for Research, Cambridge, Massachusetts. (OCE)
- "Mainstreaming Handicapped Students into the Executive High School Internship Program." Academy for Educational Development, Inc., San Francisco. (OCE)

The American Institutes of Research in Palo Alto has conducted several projects in career and vocational education over the past few years. One current project is aimed at the development of a prototype measurement/evaluation system that can be used in connection with the training of blind persons in the use of electronic travel aids to enhance their "mainstream" potential. Field testing is being conducted.

GENERALIZATIONS, CONCLUSIONS AND RECOMMENDATIONS

The preceding discussion reflects the fact that educational research still is in its infancy so far as career education for the handicapped is concerned. Although the educators of handicapped children and youth have been concerned about their students' future economic potentials, never--before 1971--has a totally integrative approach to career development been operationalized. Only now are school systems beginning to retool and start the process of initiating a comprehensive array of services: infusion of total school resources, community participation, and family involvement. The Rehabilitation Act of 1973, The Education for All Handicapped Children Act of 1975, and the Vocational Education Amendments of 1976 are all in the process of being implemented. The Career Education Incentives Implementation Act of 1977, a vital key to the future of career education, is undergoing congressional actions regarding appropriations at the time of this writing. Due process, individualized education plans, least restrictive environment, and integration are all mandates of P.L. 94-142.

Presently, definitive proof that career education is a more effective educational approach than "traditional" ones is not available. It is imperative, therefore, that studies be designed to address this question. The research presented here indicated to the authors the following generalizations:

1. The majority of the handicapped students who leave school are in danger of becoming either unemployed or underemployed in later life, despite the fact that these persons have repeatedly demonstrated their potential to achieve a higher level of community and occupational functioning than most professional workers and parents think possible.

2. At the present time, there is considerable curriculum variability in scope and sequence for career education program implementation. More definitive guidelines and procedures are necessary upon which to build curriculum. There appears to be a significantly higher degree of vocational success for those handicapped students who experienced a work-study curriculum compared to those who received the more traditionally academic one. However, there also appears to be many other curriculum aspects that need attention if a higher proportion of handicapped students are to be

successful. Personal-social, daily living skills, and other career education experiences and instruction appear equally critical for career success.

3. Parents appear to have a significant influence on the handicapped person's career development. The extent to which they influence their children, and in what ways, are areas needing further investigation. It appears that families which encourage independent development and reinforce achievement are most effective. However, many families appear unable to assume this responsibility. Parental expectations apparently influence the student's occupational expectation level, but more precise information is needed.

4. An employer's attitude toward hiring handicapped persons is a critical factor in the vocational adjustment of handicapped persons. Prior exposure to handicapping conditions seems to make employers more receptive to employing them, but there undoubtedly are a host of other variables that may be equally important. These need to be isolated and studied.

5. Once they have been satisfactorily employed, many handicapped workers frequently have better job performance and work habits than the nonhandicapped. The problem is "getting the foot in the door". However, the dynamics and stages of job advancement have not been well cataloged for the handicapped.

6. Many handicapped persons have difficulty in assuming responsible citizen roles regarding voting and other political activities, human rights, sexual functioning, and interpersonal relationships. Considerably more attention needs to be given to the development of skills for community living.

7. The avocational life role of the handicapped has received only minimal research attention despite its widely recognized inclusion in career education.

8. If provided with inservice training and support services to meet student needs, a wide variety of school personnel are willing to work with handicapped students. A low reading level is apparently of little concern to teachers of nonacademically-oriented courses. Competency-based career education, if appropriately planned, is reported to be acceptable to a large proportion of school personnel within an integrated context. This is an encouraging finding that needs to be exploited.

9. Career education activities, including properly conceived work experiences, positively increases the students' self-awareness, self-concept, occupational awareness and choice, work attitudes, and job skills. However, the studies reviewed generally are restricted in scope and inconclusive somewhat because of the limitations of the sample, number, time period, and statistical method.

10. It is apparent that the research studies that have investigated the life role of the handicapped are mostly related to the characteristics of the particular group being studied. Little information is available detailing the interaction of skills, work requirements, and environmental supports. The state of the research in career education for the handicapped at best can be described as sparse and simplistic. Whether all or any particular combinations of the practices are necessary for effective programs is not known, mainly because the necessary research has not been done. Whether this is because of the difficulty of the evaluation approach or because of an unwillingness to do so is uncertain. The need for more complex research is evident.

The following conclusions and recommendations are offered:

1. There is a paucity of empirical research that relates to career education for the handicapped. Undoubtedly this is difficult to research because of its comprehensiveness. However, the relationship between academic competence and adult role effectiveness must be studied. It is recommended that a federal agency, such as BEH, assume leadership in promoting and supporting the development of regional research centers to train personnel in designing and conducting relevant research.

2. There is a lack of specification and agreement regarding a career education content and developmental sequence. Curriculum inconsistencies will continue to exist unless research efforts are directed toward establishing an acceptable scope and sequence of career education content on a K-12 and beyond continuum. We recommend that a major research effort of this nature, utilizing the talents of career education experts, be supported and funded by the Bureau of Education for the Handicapped and other federal agencies. In addition, there is a need to investigate the interaction of the total components of career education, including the school, family and community, and the stages of career awareness, exploration, preparation, placement and follow-up. Career education is a complex phenomenon which must be infused into a complete educational approach.

3. Too little attention has been given to the career development process for handicapped individuals. The career development of younger children needs more analysis. Career development theory may be a means of understanding the career development process for handicapped children. If this were to occur, career education experiences and activities could be more appropriately offered.

4. Measures of career education achievement in the cognitive, affective, and psychomotor domains for the handicapped are limited. The lack of sensitive normative measures gives support to those who favor the criterion-reference approach to measurement. To our knowledge, very little, if anything, has been done in this area although it is frequently discussed by professionals.

5. Career assessment methods and devices have converged upon the career education market in abundance. Most have yet to demonstrate their reliability and validity. Cooperative research efforts among researchers, developers, and users of products are recommended.

6. There is little career education research that relates specifically to certain handicapping conditions, most notably the physically handicapped, emotionally and behaviorally disordered, and the learning disabled. It is recommended that researchers in these areas be brought together in a national workshop to promote such activity.

7. There also is a paucity of research on the handicapped person as a family member, citizen, and participant in productive avocational activities. Attention needs to be directed to these roles. Researchers with knowledge of independent living skills, counseling, civics, social work, family living and other related areas need to be involved and supported in such research.

8. Families of handicapped individuals are not assuming the important role career education requires. A sustained effort needs to be made so that school personnel know how to interface more appropriately with family members. For both parties, clearer roles must be delineated and a support system made available in order to help provide necessary career education experiences for handicapped individuals.

9. The business and industry sector apparently has been almost totally neglected by researchers. If the career education movement is to be fully implemented, considerable attention must be

given to the processes and settings in which handicapped learners learn to work. So far, only the work-study and experience-based career education approaches seem to have given this area much attention, although little empirical research is available.

10. The involvement and proper utilization by schools of community agencies and professional organizations needs considerable research attention. The community offers a tremendous learning laboratory for career development. Cooperative endeavors need to be delineated and methods of implementing them successfully have to be identified. This will require a large-scale cooperative effort between the educational system and the many agencies and organizations in the community. Leadership from central administration will be required to coordinate these efforts.

11. Preservice and inservice career education clearly is needed. Models of training are beginning to emerge, but much remains to be done to ascertain effective ways of personnel preparation. If career education is to move forward, colleges and universities must respond to this need and prepare many new types of professional personnel.

The Princeton Conference and other needs assessment studies noted here reflect other directions in which we must extend our efforts. It is obvious that school systems, community agencies and organizations, business and industry, and families of handicapped individuals have much to do if the career education needs of these citizens are to be met. Special education and other teacher training programs also must respond to these needs by changing their traditional personnel preparation policies so that well-qualified teachers are trained within the career education context. Universities must provide more leadership in this area than they have in the past. Although research in the career education of the handicapped is at an early state of development, we appear to be building the foundation for a greater effort in the future.

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APPENDIX

SAMPLE WORK EVALUATION SYSTEMS

Vocational Information and Evaluation Work Samples (VIEWS). Available from The Jewish Employment and Vocational Service (JEVS), 1913 Walnut Street, Philadelphia, Pennsylvania 19103.

JEVS Work Samples. Available as indicated above.

Talent Assessment Program. Available from T.A.P., 7015 Colby Avenue, Des Moines, Iowa 50311.

MICRO-TOWER. Available from the Institute for Crippled and Disabled, 340 East 24th Street, New York, N.Y. 10010.

Singer Vocational Evaluation System. Available from the Singer Education Division, 80 Commerce Drive, Rochester, N.Y. 14623.

Hester Evaluation System. Available from Goodwill Industries, 120 South Ashland Boulevard, Chicago, Illinois 60607.

Valpar Component Work Sample Series. Available from Valpar Corporation, 622 North Alvernon Way, Tuscon, Arizona 85716.

Comprehensive Occupational Assessment and Training System. Available from PREP, Inc., 1575 Parkway Avenue, Trenton, New Jersey 08628.

Wide-Range Employment Sample Test. Available from Guidance Associates of Delaware, Inc., 1526 Gilpin Avenue, Wilmington, Delaware 19806.

McCarron-Dial Work Evaluation System. Available from Commercial Marketing Enterprises, 11300 North Central, Dallas, Texas 75231.

Note: Substantive reliability and validity information is available from a few of the developers. However, much more research needs to be conducted. The systems are listed here because of their potential viability as career development tools, even though such research is needed.